

Submersible Pumping Systems

Global Product Catalogue
Effective March 1, 2014



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Information shown is accurate at the time of going to print. Franklin Fueling Systems reserves the right to change product specifications at any time. Please visit www.franklinfueling.com/approvals to view Franklin Fueling Systems Intellectual Property information.

Franklin Fueling Systems

With the most comprehensive product offering from the industry's leader in total system solutions, Franklin Fueling Systems provides unparalleled simplicity in placing one order, having one point of contact, with a customer focused service team and receiving one consolidated shipment.

A wide variety of products, a world-class customer service experience and extensive technical background create a complete system solution where our services, features and products set us apart as the industry leader.

Complete Solution

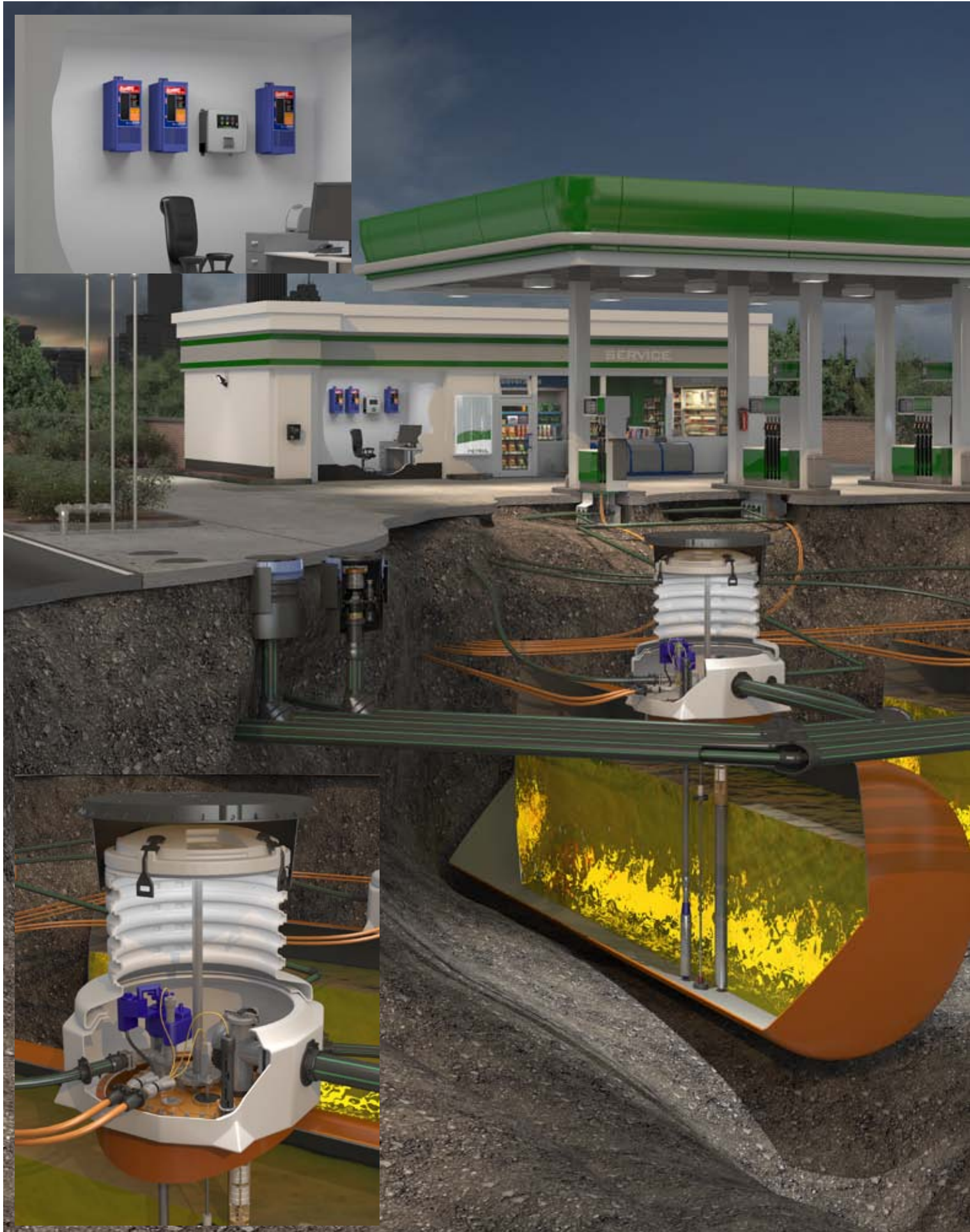
Whether you want to automate your station or network, build or re-build your station according to the latest environmental laws, update a station to fulfil new regulations or intend to realise a more cost efficient site construction and operation, you can rely on Franklin Fueling Systems. Our submersible pumping systems, service station hardware, fuel management systems and complete pipework solutions can increase your efficiency and improve your business. In addition to the industry's most comprehensive product offering.

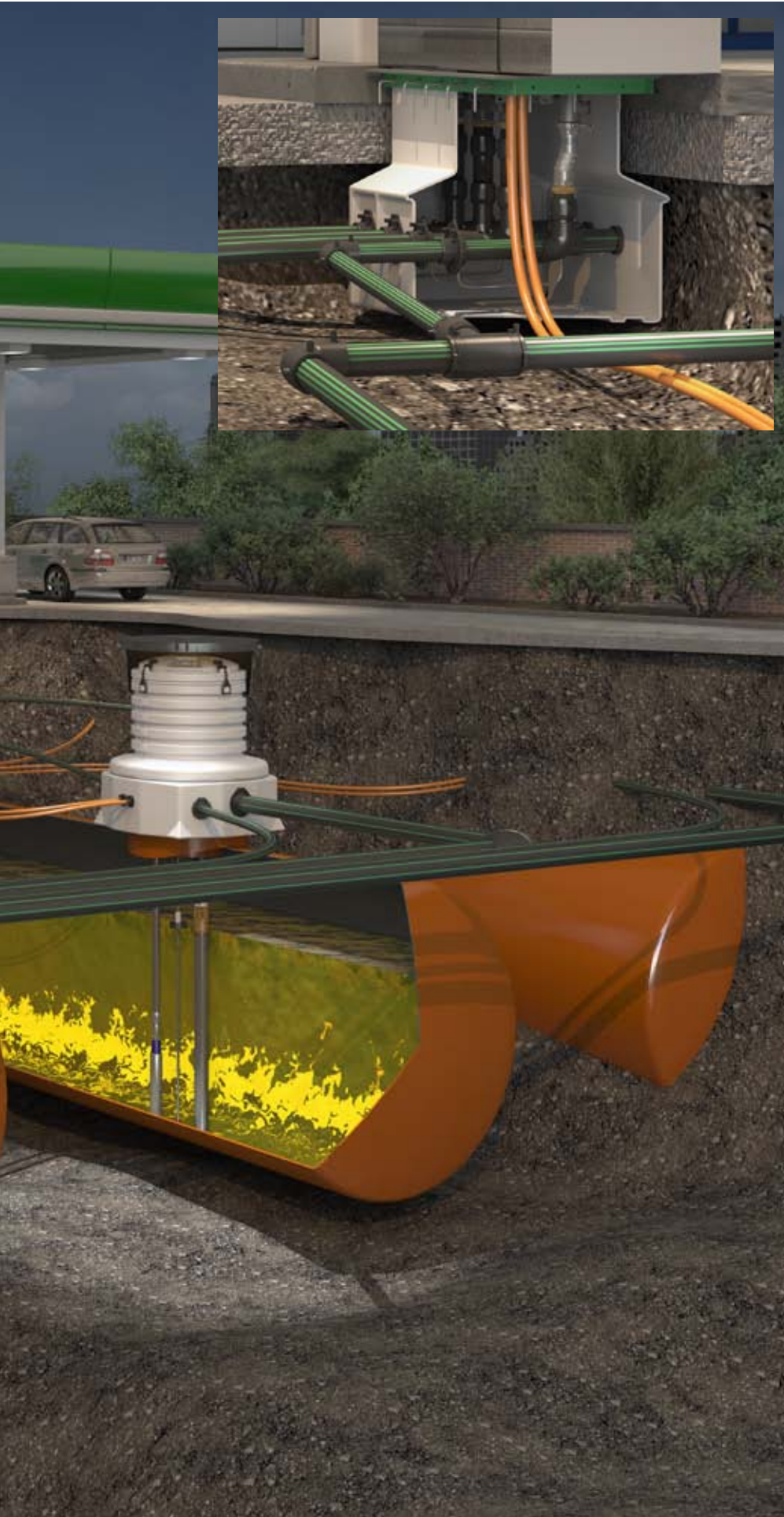
Franklin Fueling Systems also provides:

- One ordering point for all equipment.
- Factory tested leak-tight equipment.
- Reduced site downtimes.
- 100% Bio-fuel compatible options.
- Effective control of your fuel stocks.
- Assured environmental protection.
- Solutions to keep fuel in and water out.
- Lowest total cost of ownership
- Time and money savings.

Franklin Fueling Systems can deliver a complete package of pipework, manhole chambers, under dispenser containment, submersible pumps and intelligent fuel stock & environmental monitoring systems all designed around your exact needs and delivered in one shipment, ready for installation.

The Total System Solution





Submersible Pumping Systems

Franklin Fueling Systems submersible pumping systems provide faster fuel dispensing, improved efficiency and unmatched reliability. The FE Petro brand industry-leading product design offers the highest performing submersible pumping systems available.

Fuel Management Systems

Franklin Fueling Systems offers a complete line of inventory monitoring systems, providing users the capability to take complete control of fuel management. The INCON range is ideal for monitoring inventory, environmental control and fuel management. Next generation technology from INCON allows users to monitor tanks from any web browser.

Piping and Containment

Franklin Fueling Systems offers the most comprehensive line of piping and containment products in the industry. The UPP brand features innovative technology and outstanding quality. With 30 years' worth of installations and a 100% leak-free performance record, Franklin Fueling Systems is the leading provider of fuel pipe.

Service Station Hardware

Franklin Fueling Systems fuel station hardware products comprise a comprehensive and environmentally friendly system, including a complete biofuel approved system for E85 and biodiesel sold under the brands EBW and Phil-Tite.

Dispensing Systems

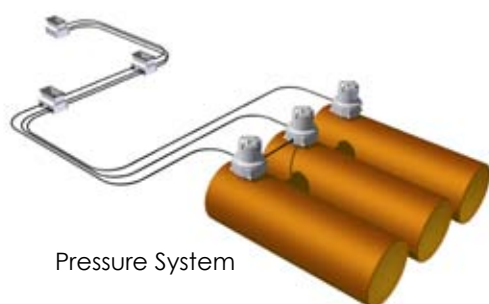
Franklin Fueling Systems manufactures and markets a complete line of Stage II vapour recovery systems globally under the Healy product brand. Healy vapour recovery products suit any application and customize to any site, ensuring proper connection.

Transport Systems

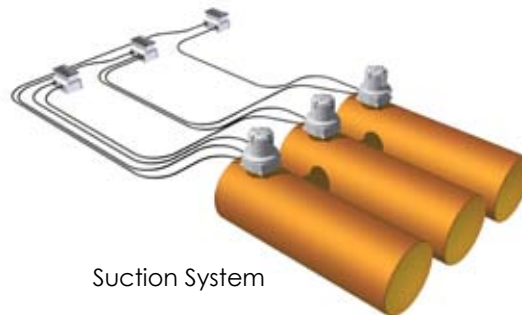
Franklin Fueling Systems road tanker systems products make it easy to connect to loading terminals and underground storage tanks with our broad line of adapters, elbows and valves. Sold under the brand EBW, these products cover both loading and off-loading applications. Our road tanker hardware products provide a wide range of connection options.

The industry's unmatched fuel pumping leader.

Suction versus Pressure



Pressure System



Suction System

3 Product x 3 Dispenser Site Comparison	
Pressure System	Suction System
3 Pump Manifolds	9 Suction Pumps
3 Pump Motors	9 Suction Motors
3 Air Eliminators	9 Air Eliminators
0 Pulleys / Belts	9 Pulleys / Belts

Pressure Systems reduce the total of number of components - meaning less moving parts and service costs while providing maximum uptime.

Additionally, Suction Systems suffer from higher energy costs with more motors to do the same amount of work during peak operation hours.

3 Product x 3 Dispenser Site Comparison	
Pressure System	Suction System
3 Product Lines	9 Product Lines
1 Pipe Trench	Multiple Pipe Trenches

Pressure Systems reduce the Product Lines - meaning less pipework and less material costs while providing maximum flow rates.

Additionally, Suction Systems suffer from issues with vapor lock and cavitation when pumping at higher elevations, higher ambient temperatures, and longer piping distances.

The Standard of Pressure Pumping Systems

The FE Petro brand pressure driven submersible pump system sets the standard for performance, efficiency and safety by which all other systems are measured. With a history of excellence dating back to the 1950's, the Franklin Electric motor which powers these submersible pumps provides unparalleled system benefits.

Variable Speed

Constant Flow

Customers expect quick and convenient refuelling of their vehicles. Variable speed technology allows FE Petro STPs to provide constant product flow no matter how many customers are pumping at the same time. An automatic performance adjustment allows for the same, consistent flow experience at every active nozzle.

Efficient Operation

Most of the world's markets and many large oil companies choose pressure driven submersible pumping systems because of the added benefits they bring to their business including fast fuel delivery, reduced energy consumption and unmatched reliability.

Safety Above All Else

It's hard to put a price on peace of mind. FE Petro systems combine with INCON brand fuel management systems for state of the art leak detection and prevention. With advanced features like AutoLearn™ technology, potential leaks are identified and positive pump shut down initiated way before a drop of fuel can reach the soil.

TPI: Turbine Pump Interface

Efficiency

Fuel management systems help an entire station run as efficiently as possible by networking a tank gauge to an intelligent submersible pump controller. Turbine Pump Interface (TPI) provides advanced fuel inventory management and tank overflow prevention features like Tank Levelling and Priority Mode.

Safety

Features such as water and dry run detection supply system alerts and can even be programmed to automatically shut down affected pumps, send an alarm to the station owner via text message and email a technician to come check out the issue.

Advantages

Faster Fuelling Times

With innovations like MagShell™, FE Petro products set the standard for submersible pump performance.

Active Air Eliminator

FE Petro products come standard with active air elimination, which eliminates air through the highest point in the pump head at all times when the pump is running, assuring air does not pass into discharge piping.

Safety and Ease of Maintenance

FE Petro STPs include a contractor electrical disconnect, which requires loosening only one bolt, allowing motor wiring to be disconnected without venting the dangerous tank vapours into the sump when servicing FE Petro submersible products.

Simple Servicing

If ever required, the pump can be easily removed from the tank by unthreading three bolts. There is no need to disconnect the syphon system or to remove the leak detector from the system to service the STP.

Submersible Turbine Pumps

Since the mid-1950s, Franklin Electric, the parent company of Franklin Fueling Systems, has been involved in the design and manufacture of submersible motors for use in pumping liquids. Building on this extensive history, FFS has contributed innovative product designs for submersible pumps into the twenty-first century. Marketers concerned about fuelling times, efficiency, serviceability, reliability and overall quality find it an easy choice to specify FE Petro products from FFS.

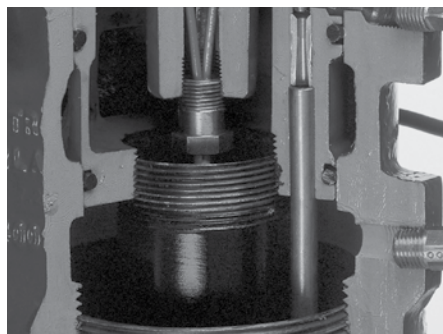
Consider these unique FE Petro product features to improve the profitability of your retail operations:



Faster Fuelling



Safety and Ease of Maintenance



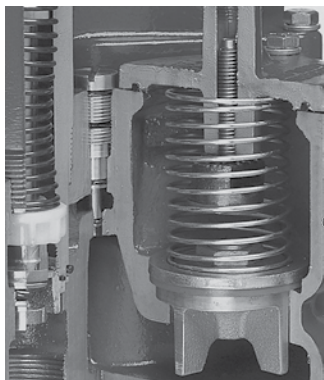
Active Air Eliminator



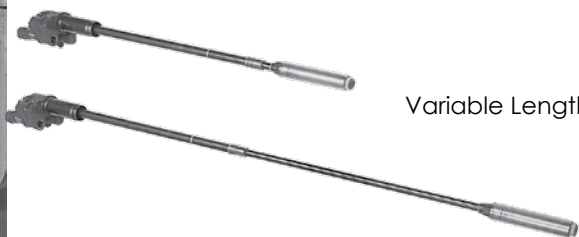
Simple Service



Manual Pressure Relief



Reliable Check Valve



Variable Length

Advantages

Manual Pressure Relief

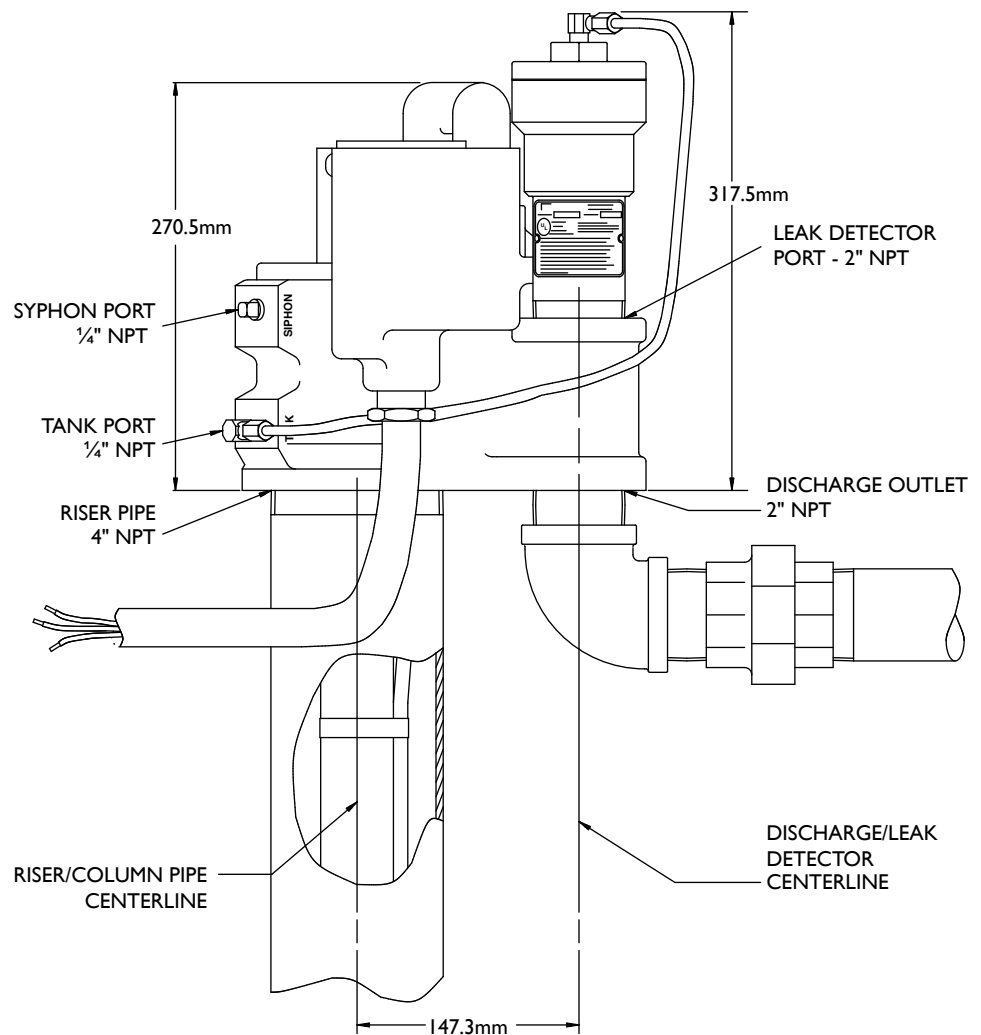
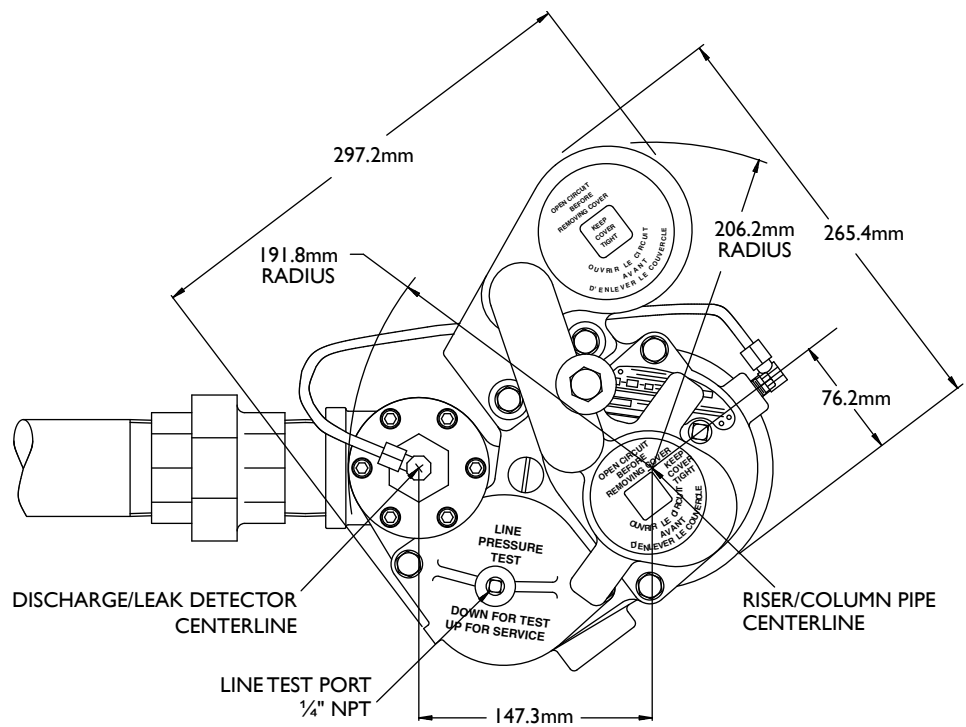
A standard FE Petro feature. A vent screw is provided to bleed line pressure to zero when necessary. By turning this screw, product is diverted back to the tank, dropping line pressure to zero. This reduces fuel discharged into the sump manhole or dispenser pan during servicing, further protecting service technicians and the environment.

Reliable Check Valve

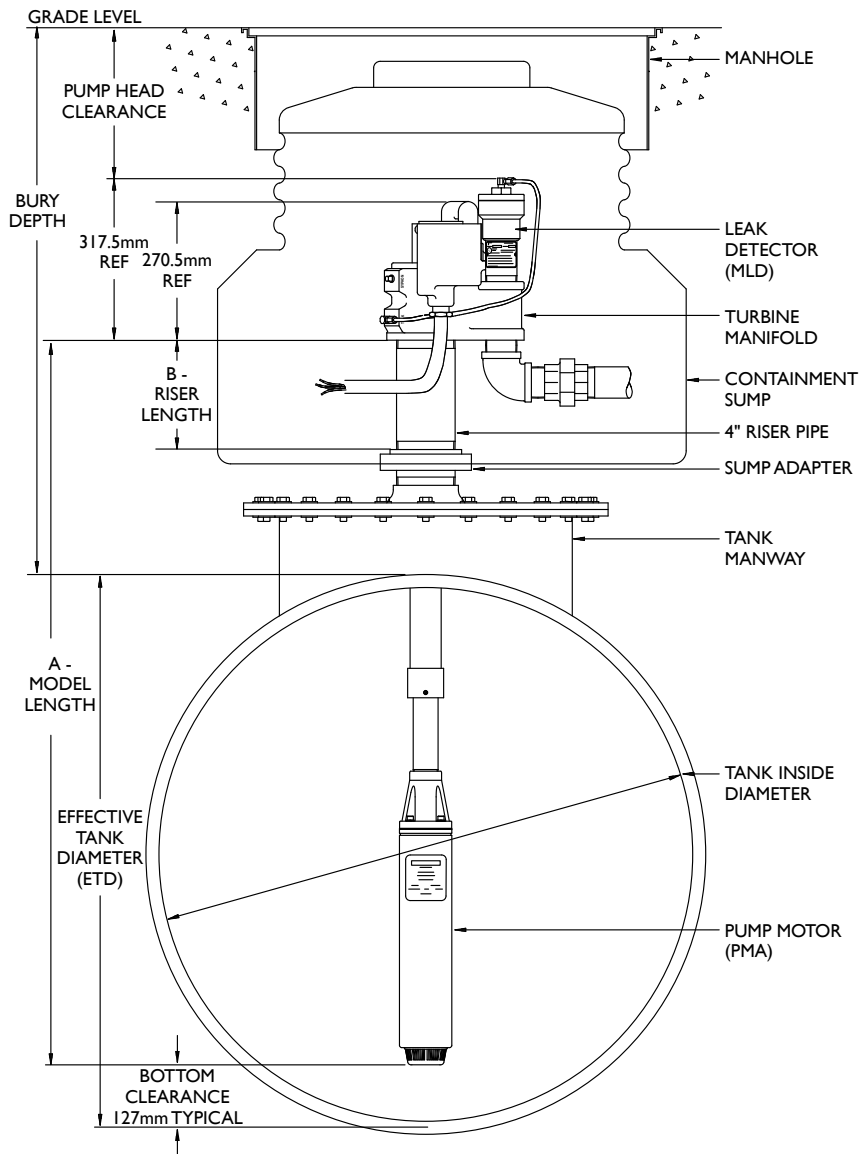
The STP uses FE Petro's proven line check valve. At 70mm in diameter, this valve reduces pressure loss at high flow rates resulting in faster fuelling times.

Variable Length

The VL2 pump fits 94% of all known tank diameters and tank bury depth combinations. The VL1 and VL3 are available to handle installations shorter or longer than this range. The telescoping connection is a patented FE Petro feature. Pump length can be set by making one simple measurement and setting the pump length without affecting the listing of the pump.



Submersible Turbine Pump Ordering Guide



- Notes:
1. Effective tank diameter (ETD) = Inside tank diameter (to top of 4" bung), including tank manway and/or sump adapter.
 2. Model length (A) = ETD plus riser length minus bottom clearance minus 25.4 mm thread engagement.
 3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.

Variable Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

Note: Standard models up to 10% ethanol capable.

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell™ (flow enhancing, expanded PMA shell)

*R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)

*W = Model W check valve (1.10 bar relief/0.89 bar reset for PPM4000)

*Note: If not otherwise specified, all STP models are supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500).

Y = Pump Motor Horsepower Rating

VS2 = 2 hp variable speed

VS4 = 4 hp variable speed

A = Model Length

VL1 = Variable length range #1.

VL2 = Variable length range #2.

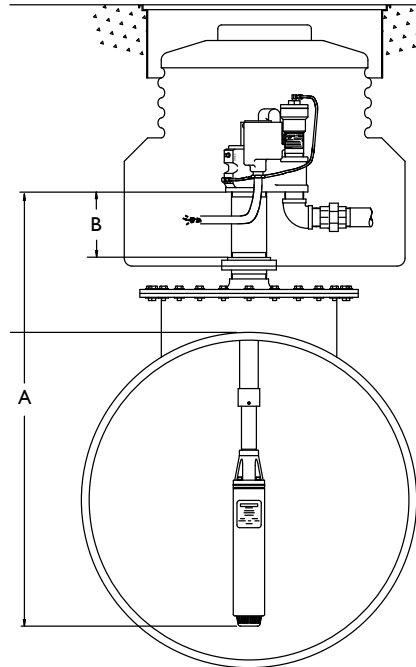
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1753mm in 25.4mm increments (additional charge for risers 787mm or longer).

Variable Speed Submersible Turbine Pump Specifications



For full diagram see page 12.

Power Requirements

VS models can only be powered by a MagVFC™ or an EcoVFC™ controller:

- VS2 models can operate with single-phase incoming power supply to the MagVFC™.
- VS2 and VS4 models can operate with three-phase incoming power supply to the EcoVFC™.
- Incoming power supply is 200-250 VAC, 50 Hz for the MagVFC™ and 360-440 VAC, 50 Hz for the EcoVFC™.
- MagVFC™ or EcoVFC™ outputs a three-phase, variable frequency signal, valid for FE Petro variable speed pumps only.
- VS2 max. motor draw: 7 Amps.
- VS4 max. motor draw: 15 Amps.
- MagVFC™ or EcoVFC™ max. line draw: 20 Amps.

Pump Motor

- 2 hp or 4 hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on MagVFC™ between 1.65 bar and 2.9 bar deadhead (no flow).

- Available with MagShell™ which results in 45% increased flow area around motor.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Variable speed models are listed for fuel mixtures containing up to 10% ethanol with gasoline and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- Variable speed (non-AG) models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- Variable speed models are available in variable and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

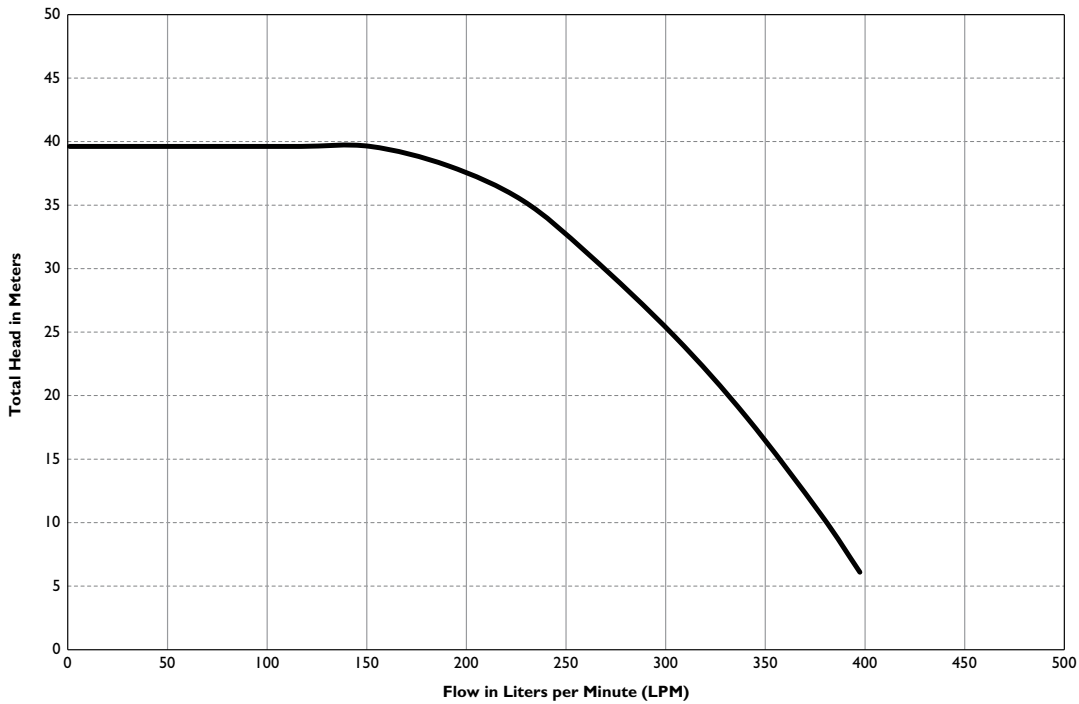
Approvals

- Consult factory for applicable approvals.

Quality Certification

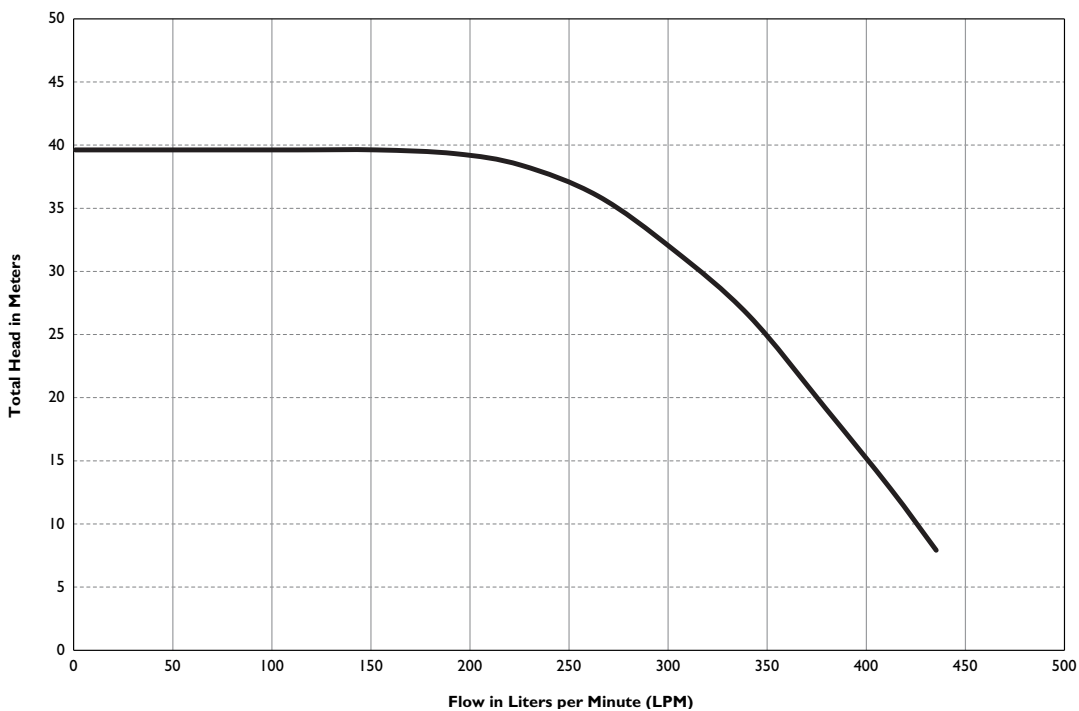
- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

2 hp Variable Speed Turbine Performance Chart (STPMVS2)



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. MagShell™ Variable Speed 2 hp was powered by MagVFC™ with Single-Phase, 50 Hz, 220 Volt incoming supply or Eco VFC with Three-Phase, 50 Hz, 410 Volt incoming power supply.

4 hp Variable Speed Turbine Performance Chart (STPMVS4)



Note: Performance based on pumping gasoline (0.76 specific gravity). Pressure is taken at the manifold discharge outlet. MagShell™ Variable Speed 4 hp was powered by Eco VFC with Three-Phase, 50 Hz, 410 Volt incoming supply.

Variable Speed Submersible Turbine Pumps
(variable speed, variable length)

Model	Description	Model Length Range Number	Model Length* Range
STPVS2-VL1	2 hp variable speed	VL1	1486mm - 2228mm
STPVS2-VL2	2 hp variable speed	VL2	2274mm - 3835mm
STPVS2-VL3	2 hp variable speed	VL3	3087mm - 5429mm
STPVS4-VL1	4 hp variable speed	VL1	1613mm - 2355mm
STPVS4-VL2	4 hp variable speed	VL2	2401mm - 3962mm
STPVS4-VL3	4 hp variable speed	VL3	3214mm - 5556mm

1. All above models are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
3. 4 hp models require EcoVFC with three-phase incoming power supply, 2 hp models can be operated with MagVFC or EcoVFC.
4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
5. For riser pipe lengths 787mm to 1753mm, additional charge applies.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals
(may specify one in model number at time of STP order)

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult Factory for other local approvals.

Factory Installed Options
(specified in model number at time of STP order)

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell™ (flow enhancing, expanded PMA shell)
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options
(intelligent submersible turbine pump specific accessories)

Part Number	Description
5874202800	MagVFC™, 200-250 VAC, 50-60 HZ one required per STP, VS2 or VS4
5874202900	EcoVFC™, 360-440Hz 50-60 Hz one required per STP, VS2 or VS4
400137937	Syphon check valve, alcohol-gasoline compatible
402459931	Model 65 PSI (4.5 bar) relief check valve (for slave of manifolded STPs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800300200	STP-DHIB, dispenser hook isolation for 240 volt dispenser handle switches, up to 8 each

Intelligent Submersible Turbine Pumps

FE Petro introduced the first variable speed submersible pump for the petroleum industry in 1995. Since that time, high volume marketers around the world have realized the benefits of filling cars faster during peak business periods that only variable speed submersibles can deliver. Station size and volumes have continued to grow. To meet the needs of these high volume retailers, FE Petro offers the intelligent submersible turbine pump, the industry's highest performing 4" diameter submersible pump.



Constant Flow



Spitback Control



MagVFC™



EcoVFC™

Advantages

Constant Flow

Depending on peak business requirements, marketers now have a choice of either 2 hp or 4 hp variable speed models. 2 hp provides constant 10 gpm (38 lpm) for up to eight fuelling positions operating simultaneously, 4 hp for up to 12 positions.

MagVFC™/ EcoVFC™ Design Highlights

The MagVFC™ and EcoVFC™ feature a dual seven segment display to show diagnostic faults. A serial interface is standard to connect to INCON System Sentinel™ software for remote reporting of pump alarms and sharing other pump/ATG intelligence. The MagVFC™ and EcoVFC™ detect and display these system conditions:

- Dry tank (initiates an immediate pump shut-down).
- Continuous pump run.
- Low incoming voltage.
- Pump motor failure.
- Short circuit detection.
- Controller faults.
- Open circuit detection.

For reduced installation cost, a shielded power cable is not required. Pump protection extends pump life and extended run fault alerts a condition that may render line leak detection ineffective. Remote reporting of pump alarms and sharing of IST and ATG intelligence further reduce station operating costs.

Meets EPA Spitback Control

The IST can be adjusted at installation to perform at maximum per nozzle flow rate of 10 gpm (38 lpm) based on the specifications of your piping and dispensing system. This eliminates overpressuring the system, which results in an unnecessarily high hydraulic hammer and need for other control devices.

Intelligent Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

IST XXXXX Y - A - B

IST = Basic Model Designation

Note: All IST models include the options of alcohol-gasoline compatibility, variable speed and variable length as part of the base model.

XXXXX = Factory Installed Options

IST model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell™ (flow enhancing, expanded PMA shell)

R* = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)

W* = Model W check valve (1.10 bar relief/0.89 bar reset for PPM4000)

*Note: If not otherwise specified, all IST models are supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300, and TS-LS500)

Y = Pump Motor Horsepower Rating**

VS4 = 4 hp variable speed

**Note: If not otherwise specified, 2 hp variable speed is implied.

A = Model Length

1 = 2 hp variable length, 1486-2228mm

2 = 2 hp variable length, 2274-3835mm

3 = 2 hp variable length, 3087-5429mm

VL1 = 4 hp variable length, 1613-2355mm

VL2 = 4 hp variable length, 2401-3962mm

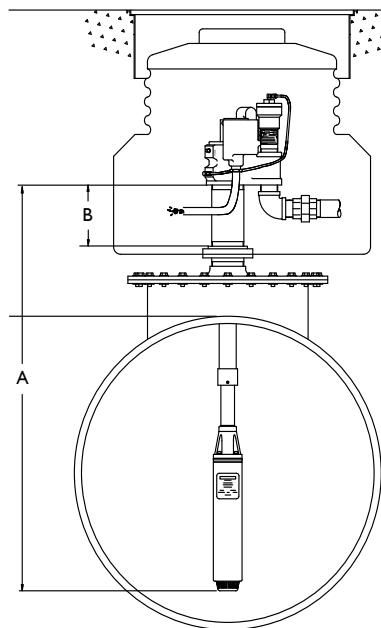
VL3 = 4 hp variable length, 3214-5556mm

Note: IST-2 and ISTVS4-VL2 models fit 94% of all known installations.

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1753mm in 25.4mm increments (additional charge for risers 787mm or longer).

Intelligent Submersible Turbine Pump Specifications



For full diagram see page 12.

Power Requirements

IST models can only be powered by a MagVFC™ or EcoVFC™ controller:

- 2 hp models can operate with single-phase incoming power supply to the MagVFC™.
- 2 and 4 hp models operate with three-phase incoming power supply to the EcoVFC™.
- Incoming power supply is 200-250 VAC, 50 Hz for the MagVFC™ and 360-440 VAC, 50 Hz for the EcoVFC™.
- MagVFC™ and EcoVFC™ outputs a three-phase, variable frequency signal, valid for FE Petro variable speed pumps only.
- 2 hp max. motor draw: 7 Amps.
- 4 hp max. motor draw: 15 Amps.
- MagVFC™ max. line draw: 20 Amps.

Pump Motor

- 2 hp or 4 hp, variable speed, two-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Max. pressure: selectable operating pressure on MagVFC™ between 1.65 bar and 2.9 bar deadhead.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- IST models imply alcohol-gasoline compatibility for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- IST models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- All IST models include variable speed, variable length options and alcohol-gasoline compatibility.
- Check valve: 70mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Intelligent Submersible Turbine Pumps (variable speed, variable length, AG compatible)

Model	Description	Model Length* Range
IST-1	2 hp variable speed	1486mm - 2228mm
IST-2	2 hp variable speed	2274mm - 3835mm
IST-3	2 hp variable speed	3087mm - 5429mm
ISTVS4-VL1	4 hp variable speed	1613mm - 2355mm
ISTVS4-VL2	4 hp variable speed	2401mm - 3962mm
ISTVS4-VL3	4 hp variable speed	3214mm - 5556mm

- All above models are compatible with fuel mixtures containing up to 85% ethanol with gasoline, diesel fuels with up to 20% biodiesel, 100% biodiesel, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
- 4 hp models require EcoVFC with three-phase incoming power supply, 2 hp models can be powered by MagVFC or EcoVFC.
- 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
- STPAG models are UL listed for compatibility with fuel mixtures containing up to 85% ethanol with gasoline.
- For riser pipe lengths 787mm to 1753mm, additional charge applies.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals (may specify one in model number at time of IST order)

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult Factory for other local approvals.

Factory Installed Options (specified in model number at time of IST order)

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell™ (flow enhancing, expanded PMA shell)
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options (intelligent submersible turbine pump specific accessories)

Part Number	Description
5874202800	MagVFC™, 200-250 VAC, 50-60 HZ one required per IST
5874202900	EcoVFC™, 360-440Hz 50-60 Hz one required per IST
400137937	Syphon check valve, alcohol-gasoline compatible
402459931	Model 65 PSI (4.5 bar) relief check valve (for slave of manifolded ISTs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one IST)
5800300200	STP-DHIB, dispenser hook isolation for 240 volt dispenser handle switches, up to 8 each

Advantages

Highest Flow

The STPM200 with MagShell™ provides flow rates previously unavailable in 4" fixed speed submersible turbine pumps. One pump can provide good flow rates for up to 10 retail nozzles flowing simultaneously. FE Petro offers the 2 hp performance in both standard and high pressure models to fit any application.

MagShell™

MagShell™ is a feature on our 2 hp models. The pump motor shell is expanded to increase the flow area around the motor by 45%, resulting in significantly higher flow rates. MagShell™ is constructed of 304 stainless steel and is the highest performing 2 hp fixed speed submersible ever offered.

Easy Upgrade

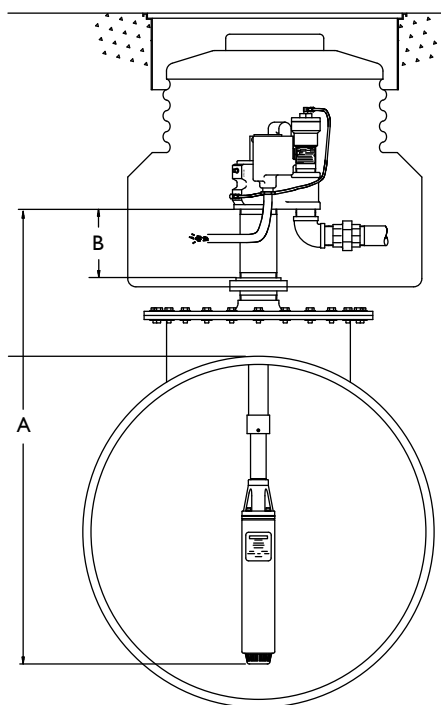
If you have existing STPs in your stations and want faster flow rates, consider upgrading to a 2 hp pump motor from FE Petro. The pump motor is compatible with existing FE Petro and competitive-make submersible pumps and can increase flow rates (3.8 to 7.6 lpm per nozzle with 5-8 nozzles operating) and go easy on your budget at the same time. FE Petro pump motors sell for about one-third the cost of a complete pump change-out.

Fixed Speed Submersible Turbine Pumps

FE Petro has contributed innovative product designs for submersible pumps into the twenty-first century. With the introduction of a 2 hp fixed speed submersible pump, FE Petro also introduced the Magshell innovation to improve the profitability of retail operations.



2 hp Fixed Speed Submersible Turbine Pump Specifications



For full diagram see page 12.

Power Requirements

- 200B models require single-phase, 200-250 VAC, 50 Hz incoming power.
- 200B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 40 microfarad.
- STP-SCI single-phase smart controllers and STP-CBBS single-phase control boxes are available for 200B control.
- 200C models require three-phase, 380-415 VAC, 50 Hz incoming power.
- STP-CBB three-phase magnetic starter available for 200C control.

Pump Motor

- 2 hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.
- Available with MagShell™ for 45% increased flow area around motor.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Standard STP models are listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG (AG compatible) models are for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 2 hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- 2 hp fixed speed models are available in variable length and fixed length options.
- Check valve: 70 mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

2 hp Fixed Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (up to 85% ethanol, up to 20% biodiesel, or 100% biodiesel) Note: Standard models up to 10% ethanol capable.

F = Floating suction adapter (1½" NPT female adapter)

H = High pressure (3.1 bar deadhead (no flow output))

K = Intake filter screen (IFS, factory installed to PMA)

M = MagShell™ (flow enhancing, expanded PMA shell)

R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)

W = Model W check valve (1.10 bar relief/ 0.89 bar reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500)

Y = Pump Motor Horsepower Rating

200B = 2 hp fixed speed, 50 hz, 1-phase
200C = 2 hp fixed speed, 50 hz, 3-phase

A = Model Length

VL1 = Variable length range #1.

VL2 = Variable length range #2.

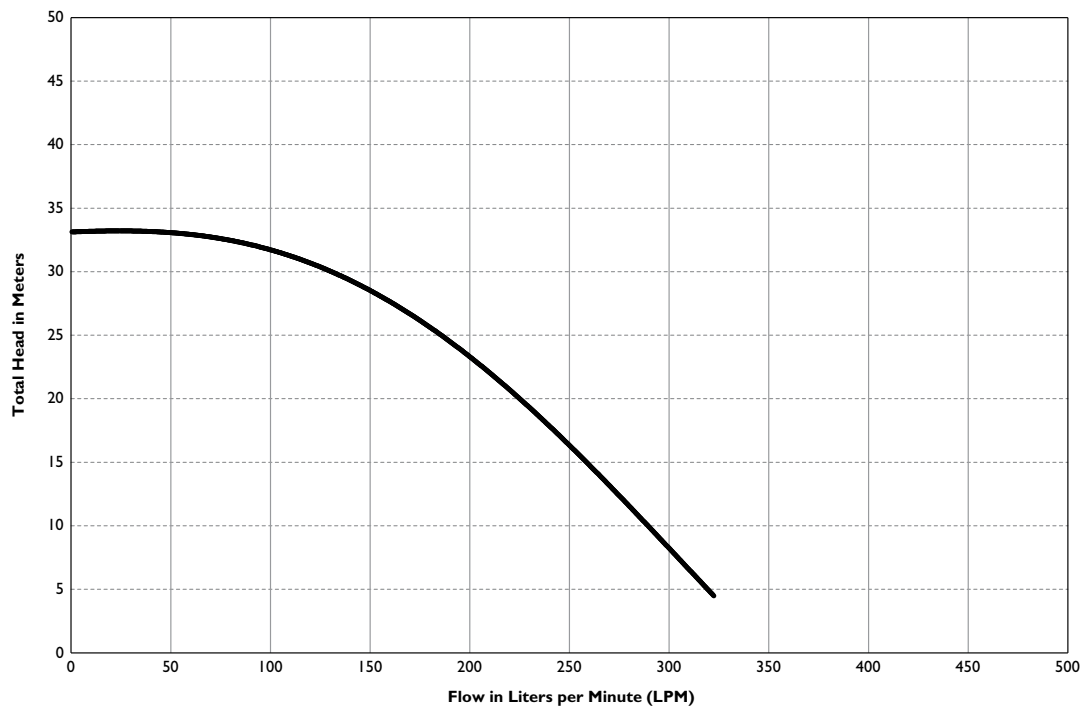
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

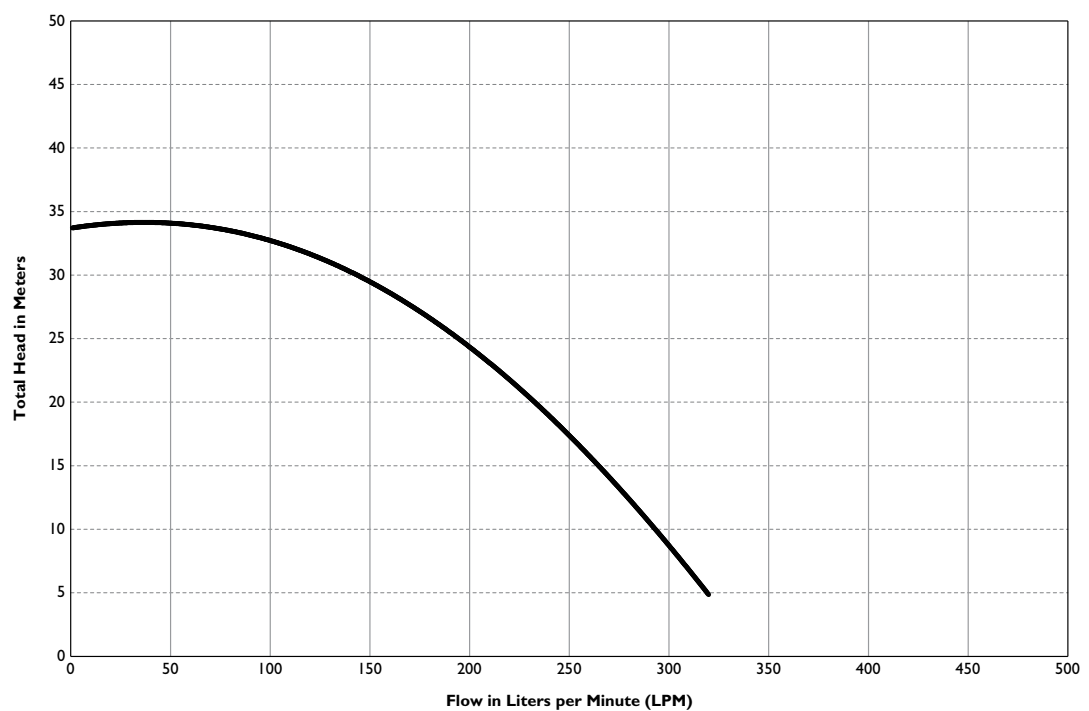
Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1753mm in 25.4mm increments (additional charge for risers 787mm or longer).

2 hp Fixed Speed Turbine Performance Chart (STP200B)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 2.00 HP was powered by Single-Phase, 50 Hz, 250 Volt incoming supply.

2 hp Fixed Speed Turbine Performance Chart (STP200C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 2.00 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

2 hp Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STP200B-VL1	2 hp fixed speed, single-phase	VL1	1632mm-2374mm
STP200B-VL2	2 hp fixed speed, single-phase	VL2	2420mm-3981mm
STP200B-VL3	2 hp fixed speed, single-phase	VL3	3233mm-5575mm
STP200C-VL1	2 hp fixed speed, three-phase	VL1	1575mm-2317mm
STP200C-VL2	2 hp fixed speed, three-phase	VL2	2363mm-3924mm
STP200C-VL3	2 hp fixed speed, three-phase	VL3	3175mm-5518mm

Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAG200B-VL1	2 hp AG fixed speed, single-phase	VL1	1632mm-2374mm
STPAG200B-VL2	2 hp AG fixed speed, single-phase	VL2	2420mm-3981mm
STPAG200B-VL3	2 hp AG fixed speed, single-phase	VL3	3233mm-5575mm
STPAG200C-VL1	2 hp AG fixed speed, three-phase	VL1	1575mm-2317mm
STPAG200C-VL2	2 hp AG fixed speed, three-phase	VL2	2363mm-3924mm
STPAG200C-VL3	2 hp AG fixed speed, three-phase	VL3	3175mm-5518mm

1. STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
3. All 200B models require single-phase, 200-250 VAC, 50 Hz incoming power. All 200C models require three-phase, 380-415 VAC, 50 Hz incoming power
4. 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
5. For riser pipe lengths 787mm to 1753mm, additional charge applies.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals (may specify one in model number at time of STP order)

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult Factory for other local approvals.

Factory Installed Options (specified in model number at time of STP order)

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
H	High Pressure 3.1 bar deadhead output
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell™ (flow enhancing, expanded PMA shell)
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options (2 hp fixed speed specific accessories)

Part Number	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5800100215	STP-SCI, single-phase smart controller
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312922	STP-DHIB-SCI, combo DHIB with factory wired to STP-SCI
402313922	STP-DHIB-CBBS, combo DHIB with factory wired STP-CBBS
402459931	Model 65 PSI (4.5 bar) relief check valve (for slave of manifolded STPs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
401220965	STP-CBB3C, three phase 380-415 VAC magnetic starter
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

1½ hp Fixed Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (up to 85% ethanol, up to 20% biodiesel, or 100% biodiesel) Note: Standard models up to 10% ethanol capable.

F = Floating suction adapter (1½" NPT female adapter)

H = High pressure (3.1 bar deadhead (no flow output))

K = Intake filter screen (IFS, factory installed to PMA)

*R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)

*W = Model W check valve (1.10 bar relief/ 0.89 bar reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500).

Y = Pump Motor Horsepower Rating

150B = 1½ hp fixed speed, 50 Hz, 1-phase
150C = 1½ hp fixed speed, 50 Hz, 3-phase

A = Model Length

VL1 = Variable length range #1.

VL2 = Variable length range #2.

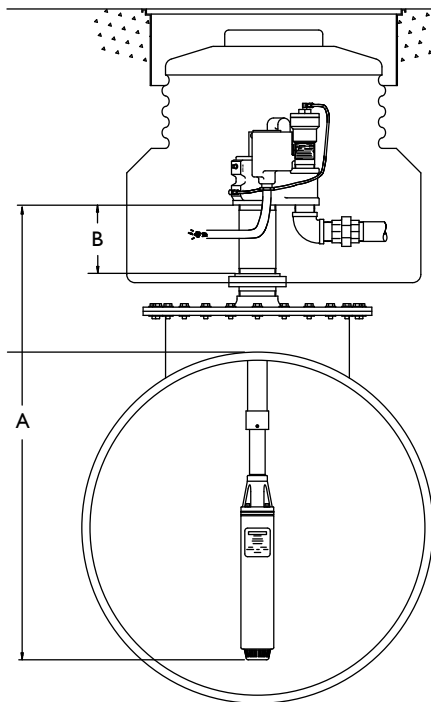
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm to 1753mm in 25.4mm increments (additional charge for risers 787mm or longer).

1½ hp Fixed Speed Submersible Turbine Pump Specifications



For full diagram see ordering guide.

Power Requirements

- 150B models require single-phase, 200-250 VAC, 50 Hz incoming power.
- 150B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- STP-SCI single-phase smart controllers and STP-CBBS single-phase control boxes are available for 150B control.
- 150C models require three-phase, 380-415 V, 50 Hz incoming power.
- STP-SCIII three-phase smart controllers available for 200C control.

Pump Motor

- 1½ hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Standard models are listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG models are compatible for fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 1½ hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- 1½ hp fixed speed models are available in variable and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

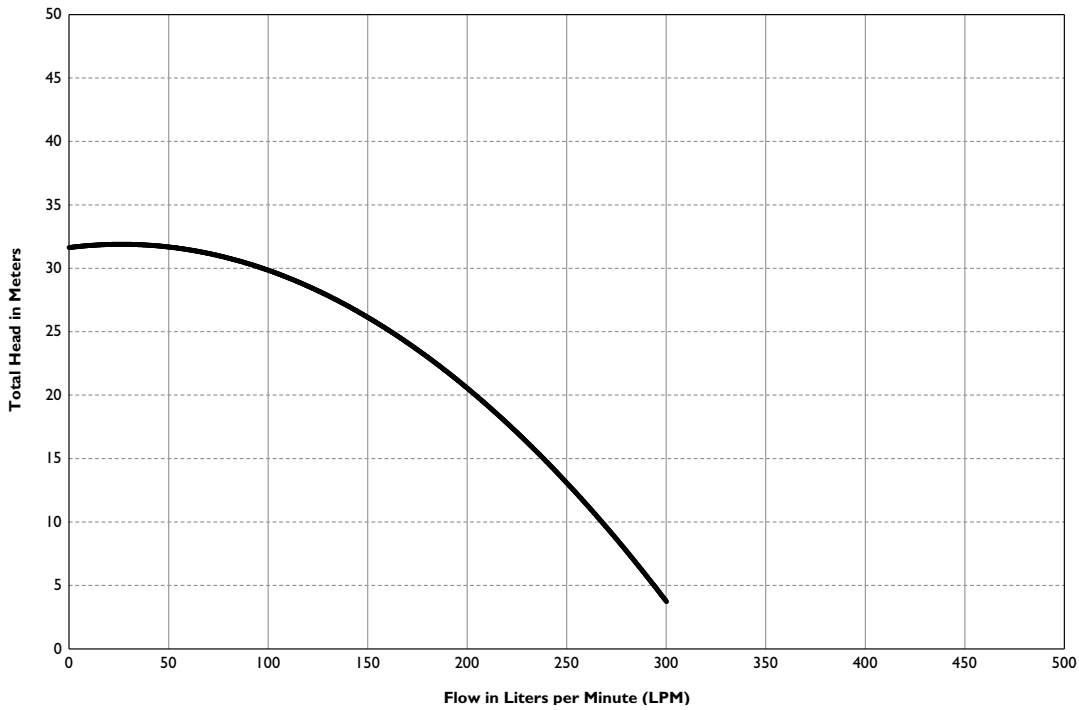
Approvals

- Consult factory for applicable approvals.

Quality Certification

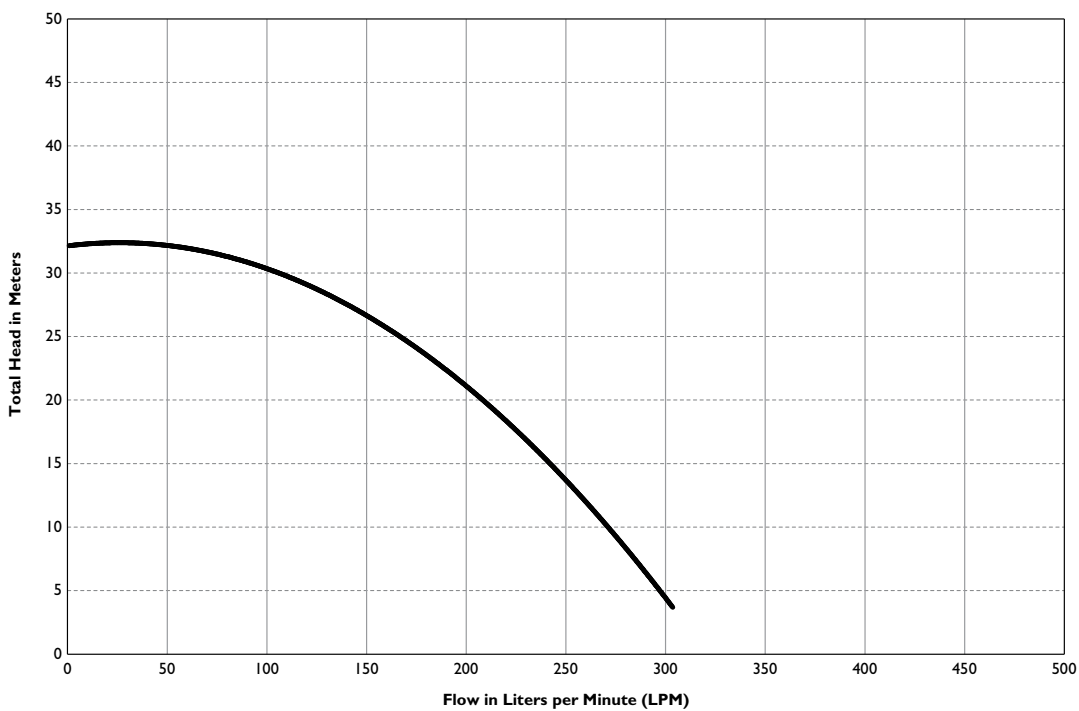
- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

1½ hp Fixed Speed Turbine Performance Chart (STP150B)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 1.5 HP was powered by Single-Phase, 50 Hz, 250 Volt incoming supply.

1½ hp Fixed Speed Turbine Performance Chart (STP150C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 1.50 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

1½ HP Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STP150B-VL1	1½ hp fixed speed, single-phase	VL1	1556mm-2298mm
STP150B-VL2	1½ hp fixed speed, single-phase	VL2	2344mm-3905mm
STP150B-VL3	1½ hp fixed speed, single-phase	VL3	3156mm-5499mm
STP150C-VL1	1½ hp fixed speed, three-phase	VL1	1531mm-2273mm
STP150C-VL2	1½ hp fixed speed, three-phase	VL2	2318mm-3879mm
STP150C-VL3	1½ hp fixed speed, three-phase	VL3	3131mm-5473mm

Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAG150B-VL1	1½ hp AG fixed speed, single-phase	VL1	1556mm-2298mm
STPAG150B-VL2	1½ hp AG fixed speed, single-phase	VL2	2344mm-3905mm
STPAG150B-VL3	1½ hp AG fixed speed, single-phase	VL3	3156mm-5499mm
STPAG150C-VL1	1½ hp AG fixed speed, three-phase	VL1	1531mm-2273mm
STPAG150C-VL2	1½ hp AG fixed speed, three-phase	VL2	2318mm-3879mm
STPAG150C-VL3	1½ hp AG fixed speed, three-phase	VL3	3131mm-5473mm

- STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuel, and 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
- 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
- 150B models require single-phase, 200-250 VAC, 50 Hz incoming power. 150C models require three-phase, 380-415 VAC, 50Hz incoming power.
- For riser pipe lengths 787mm to 1753mm, additional charge applies.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals (may specify one in model number at time of STP order)

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult Factory for other local approvals.

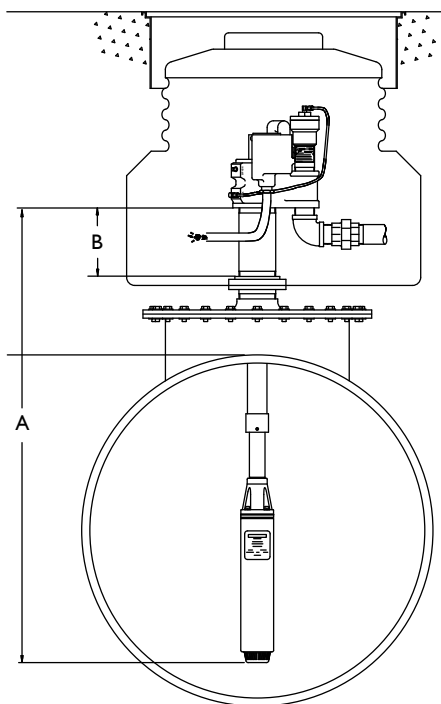
Factory Installed Options (specified in model number at time of STP order)

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
H	High Pressure 3.1 bar deadhead output
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options (1½ hp fixed speed specific accessories)

Part Number	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5800100215	STP-SCI, single-phase smart controller
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312922	STP-DHIB-SCI, combo DHIB with factory wired STP-SCI
402313922	STP-DHIB-CBBS, combo DHIB with factory wired STP-CBBS
402459931	Model 65 PSI (4.5 bar) relief check valve (for slave of manifolded STPs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800103300	STP-SCIIC, three phase 380-415 VAC smart controller
401220965	STP-CBB3C, three-phase 380-415 VAC magnetic starter
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

3/4 HP Fixed Speed Submersible Turbine Pump Specifications



For full diagram see ordering guide.

Power Requirements

- 75B models require single-phase, 200-250 VAC, 50 Hz incoming power.
- 75B models incorporate a starting and running capacitor, with internal bleed resistor, rated 440 Volt, 15 microfarad.
- STP-SCI single-phase smart controllers and STP-CBBS single-phase control boxes are available for 75B control.
- 75C models require three-phase, 380-415 VAC, 50 Hz incoming power.
- STP-SCIII C three-phase smart controllers available for 75C control.

Pump Motor

- 3/4 hp fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with integral, automatic, thermal overload protection.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Standard models are listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- 3/4 hp fixed speed models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon compound.

Standard Features

- 3/4 hp fixed speed models are available in variable and fixed length options.
- Check valve: 70mm diameter fluorocarbon seal constructed on cast aluminium body and steel backing washer.
- Pressure relief valve: available in four pressure relief settings, integral to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: venturi-type syphon primer supplied with every submersible. Syphon check valve and secondary syphon sold separately.
- Air eliminator: every submersible includes a tank return path with one-way check valve to provide active air elimination.
- Electrical disconnect: electrical yoke for positive contractor disconnect during service.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

3/4 HP Fixed Speed Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

XXXXXX = Factory Installed Options

STP model designations may include one or more of the following characters in alphabetical order:

AG = Alcohol-gasoline compatible (up to 85% ethanol, up to 20% biodiesel, or 100% biodiesel) Note: Standard models up to 10% ethanol capable.

F = Floating suction adapter (1½" NPT female adapter)

K = Intake filter screen (IFS, factory installed to PMA)

*R = Model R check valve (1.65 bar relief/1.52 bar reset for PLLD)

*W = Model W check valve (1.10 bar relief/ 0.89 bar reset for PPM4000)

*Note: If not otherwise specified, all STP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500).

Y = Pump Motor Horsepower Rating

75B = 3/4 hp fixed speed, single-phase

75C = 3/4 hp fixed speed, three-phase

A = Model Length**

VL1 = Variable length range #1.

VL2 = Variable length range #2.

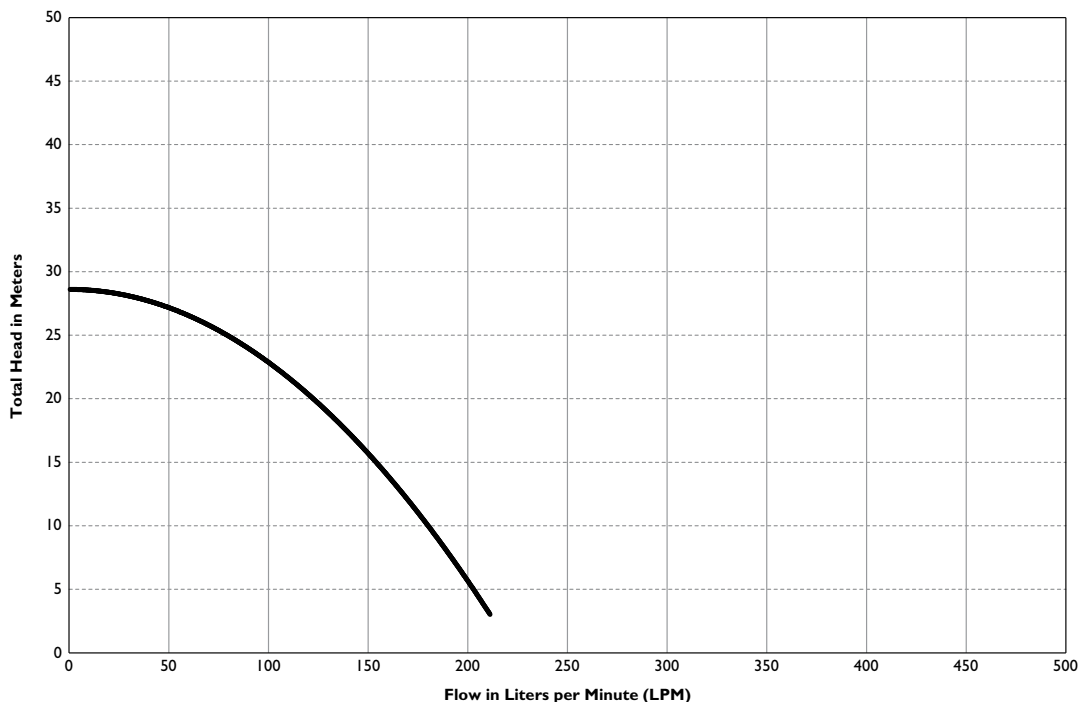
VL3 = Variable length range #3.

Note: VL2 models fit 94% of all known installations.

B = Riser Pipe Length

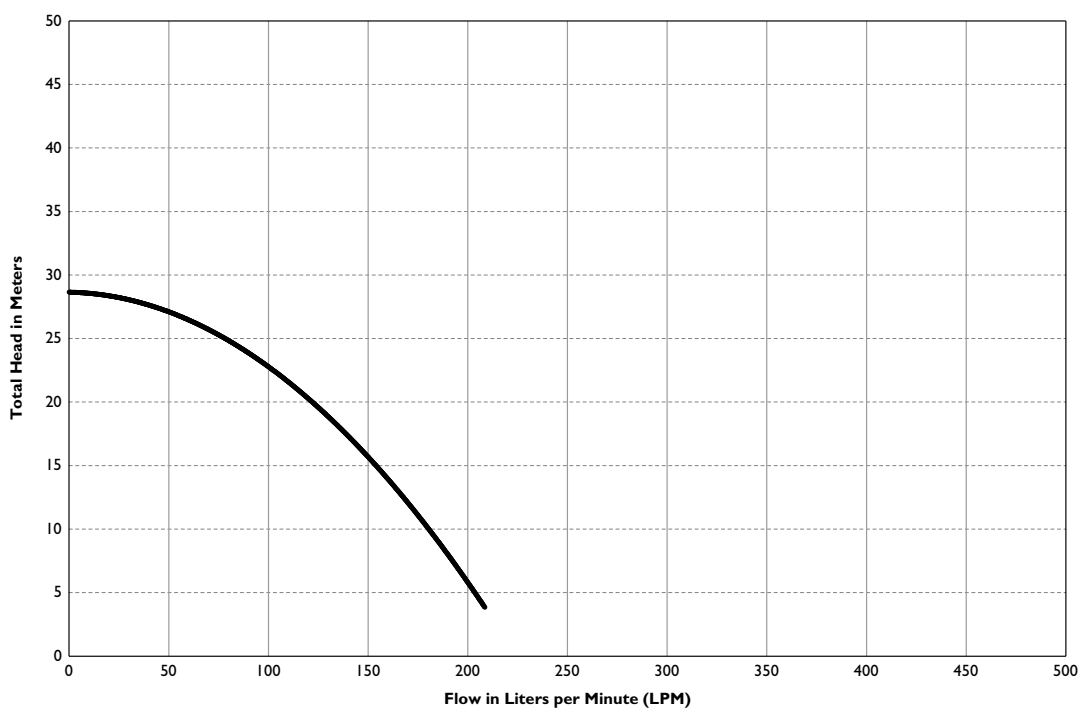
Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 178mm-1753mm in 25.4mm increments (additional charge for risers 787mm or longer).

3/4 hp Fixed Speed Turbine Performance Chart (STP75B)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 0.75 HP was powered by Single-Phase, 50 Hz, 250 Volt incoming supply.

3/4 hp Fixed Speed Turbine Performance Chart (STP75C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 0.75 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

3/4 HP Fixed Speed Submersible Turbine Pumps

Model	Description	Model Length Range Number	Model Length* Range
STP75B-VL1	3/4 hp fixed speed, single-phase	VL1	1499mm-2241mm
STP75B-VL2	3/4 hp fixed speed, single-phase	VL2	2286mm-3848mm
STP75B-VL3	3/4 hp fixed speed, single-phase	VL3	3099mm-5441mm
STP75C-VL1	3/4 hp fixed speed, three-phase	VL1	1480mm-2222mm
STP75C-VL2	3/4 hp fixed speed, three-phase	VL2	2267mm-3829mm
STP75C-VL3	3/4 hp fixed speed, three-phase	VL3	3080mm-5422mm
Alcohol-Gasoline Model	Description	Model Length Range Number	Model Length* Range
STPAG75B-VL1	3/4 hp AG fixed speed, single-phase	VL1	1499mm-2241mm
STPAG75B-VL2	3/4 hp AG fixed speed, single-phase	VL2	2286mm-3848mm
STPAG75B-VL3	3/4 hp AG fixed speed, single-phase	VL3	3099mm-5441mm
STPAG75C-VL1	3/4 hp AG fixed speed, three-phase	VL1	1480mm-2222mm
STPAG75C-VL2	3/4 hp AG fixed speed, three-phase	VL2	2267mm-3829mm
STPAG75C-VL3	3/4 hp AG fixed speed, three-phase	VL3	3080mm-5422mm

- STP models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuel, 20% MTBE, 20% ETBE or 17% TAME with gasoline. STPAG models are compatible with fuel mixtures containing diesel fuel with up to 20% biodiesel, 100% biodiesel, up to 85% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- All models are supplied with a standard check valve unless factory option "R" or "W" is specified.
- 4" riser pipe, if supplied locally, must be 4½" OD by 3/16" WT tubing.
- 75B models require single-phase, 200-250 VAC, 50 Hz power. 75C models require three-phase, 380-415 VAC, 50 Hz power.
- For riser pipe lengths 787mm to 1753mm, additional charge applies.

*Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet.

Factory Installed Approvals (may specify one in model number at time of STP order)

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult Factory for other local approvals.

Factory Installed Options (specified in model number at time of STP order)

Designation	Description
F	Floating suction adapter, 1½" NPT female, must be factory installed
K	IFS (intake filter screen) factory assembled to pump motor assembly
R	Model R check valve, factory installed, for Veeder Root™ PLLD Line Leak
W	Model W check valve, factory installed, for Red Jacket™ PPM4000 Line Leak

Field Installed Options (3/4 hp fixed speed specific accessories)

Part Number	Description
400137937	Syphon check valve, alcohol-gasoline compatible
5800100215	STP-SCI, single-phase smart controller
400818922	STP-CBBS, single-phase control box with lockout switch, 240 Volt coil
402312922	STP-DHIB-SCI, combo DHIB with factory wired STP-SCI
402313922	STP-DHIB-CBBS, combo DHIB with factory wired STP-CBBS
402459931	Model 65 PSI (4.5 bar) relief check valve (for slave of manifolded STPs with Veeder Root™ PLLD)
402507930	Secondary syphon kit (when two syphon primes are required for one STP)
5800103300	STP-SCIII C, three phase 380-415 VAC smart controller
401220965	STP-CBB3C, three-phase 380-415 VAC magnetic starter
5800300200	STP-DHIB, dispenser hook isolation for 240 Volt dispenser handle switches, up to eight each

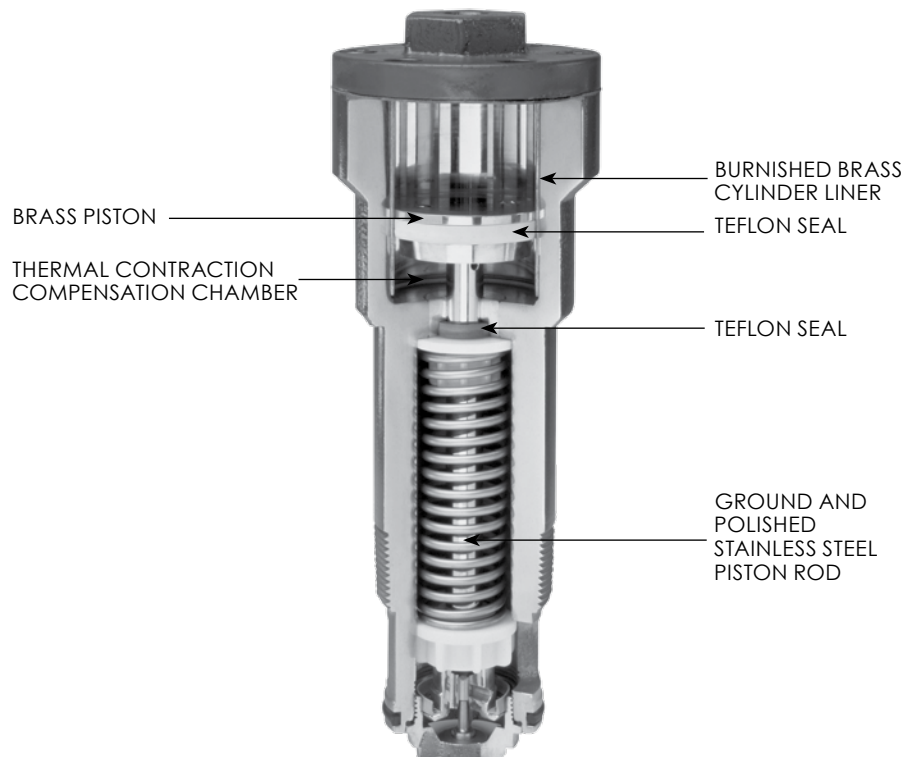
Advantages

- All models are capable of detecting line leaks equivalent to 11.4 lph at 0.68 bar when installed properly with the appropriate fuels. All models will signal detection of leaks by restricting product delivery to less than 11.4 lpm and taking more than 4 seconds to open.
- All models require 2 to 3 seconds to make a line test when no line leaks exist and air is purged from piping between the discharge of the MLD and the dispenser solenoid.
- All models will remain in the "open" position during product delivery to manifold, with discharge pressures as low as 0.069 bar. All models will reset to "tripped" when line pressure delay is below 0.207 bar with pump off.
- All models will detect leaks up to 3.04m above the MLD installation point.



Mechanical Line Leak Detector

For use with 4" STPs, the MLD product line is precision built, with unique construction features that provide busy stations with maximum flow rates and long service life. The MLD is offered in three models to match your exact application, ensuring accurate, nuisance-free operation critical to profitable station operation.



Specifications:

- Three models: STP-MLD (blue) for gasoline and STP-MLD-D (tan) for diesel.
- Solid brass piston has 41.3mm of travel to move the leak detection poppet fully out of the flow, offering minimum flow restriction and maximum flow rates.
- Burnished brass cylinder liner and polished stainless steel piston rod ensure smooth operation and long life from the Teflon seal.
- Thermal compensation chamber of 94.2 cubic centimeters helps minimise thermal contraction nuisance tripping.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- STP-MLD models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline, as well as diesel fuels, fuel oils, kerosene, Avgas and jet fuels.
- STP-MLD-D models are listed for diesel fuels or kerosene only.

Approvals

- Third party certified to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurised piping.
- Consult factory for other applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

Mechanical Line Leak Detector (for use with 4" STPs)*

Single Pack

Part Number	Description
400500901	STP-MLD for gasoline, blue
400501901	STP-MLD-D for diesel or kerosene, tan

Three Pack

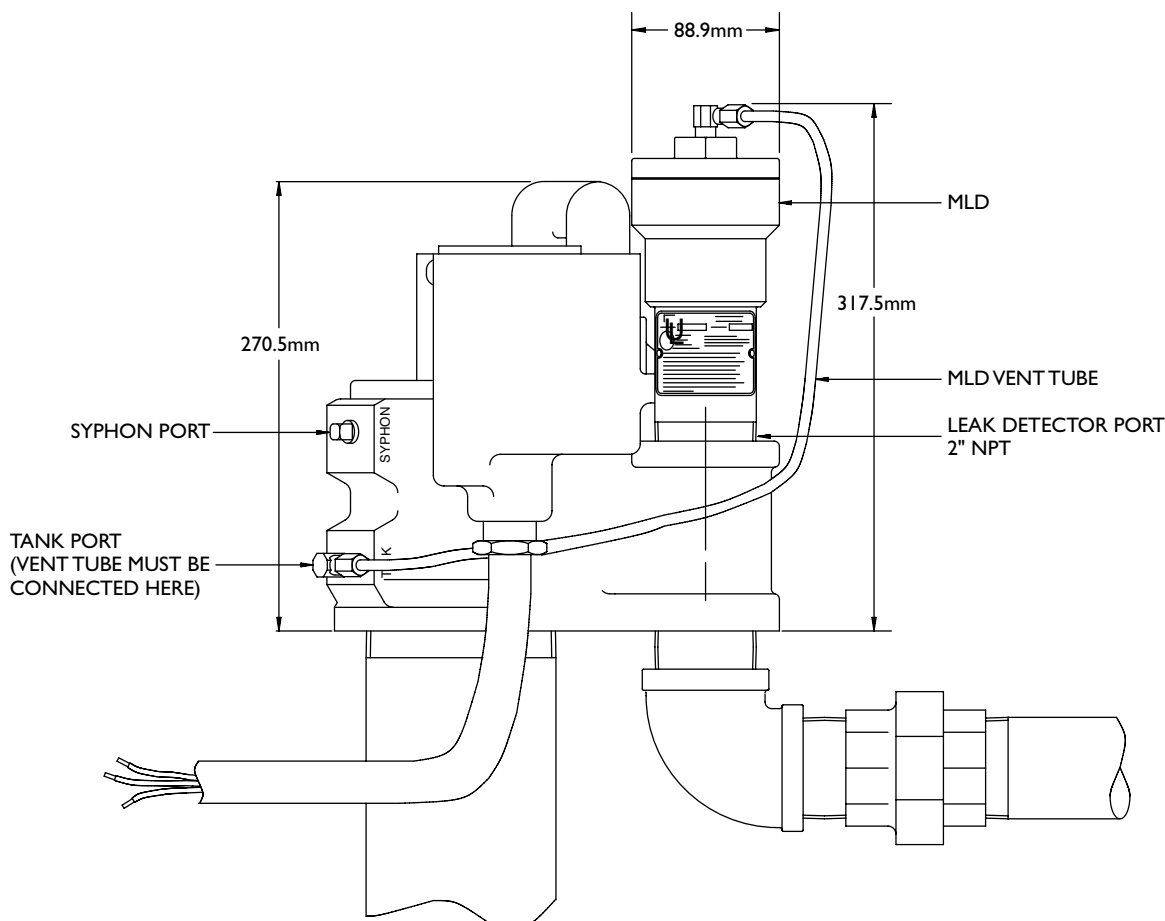
Part Number	Description
400500903	STP-MLD for gasoline
400501903	STP-MLD-D for diesel or kerosene

- Notes:
1. MLD models are compatible with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
 2. MLD-D models are listed for compatibility with diesel fuels and kerosene applications only.
 3. All above models will only mount in the 2" NPT leak detector port of a 4" submersible turbine, including competitive models, or in a leak detector adapter tee (sold separately below).

*Refer to STP-MLD installation manual for complete compatibility specifications.

MLD Repair Parts and Accessories

Part Number	Description
400440101	MLD vent tube
400449901	MLD hardware pack, fittings and documentation
400518001	Leak detector adapter tee



Advantages

Easy Retrofit

The STP-SCI is compatible with single-phase fixed speed STPs from FE Petro or other competitive models. Retrofitting an existing station requires replacing an existing control box with the STP-SCI and pressing the reset button to allow the controller to automatically “learn” the electrical characteristics of the pump.

History Storage of Pump Conditions

The STP-SCI automatically logs the last five abnormal conditions seen in the pumping system. This data is retained in non-volatile memory. Service technicians can then quickly view a history of abnormal conditions, particularly useful when troubleshooting intermittent conditions.



Single-Phase Smart Controller

Designed to replace standard control boxes in both new and existing installations. The STP-SCI provides valuable pump protection and performance features never before offered in one economical controller.



Feature	STP-SCI	Standard Control Box
Dry run protection with automatic reset	Yes	No
Low voltage detection	Yes	No
Pump motor failure detection	Yes	No
Open circuit detection	Yes	No
Extended pump run detection	Yes	No
Slave pump auto start operation	Yes	No
Auto sequencing of manifold pump	Yes	No
Fault diagnostic lights	Yes	No
Pump operating light	Yes	Yes
High voltage surge protection	Yes	No
Fault history storage	Yes	No
Power “ON” light	Yes	No
External run light provision	Yes	Yes
Compatible with 1/3 through 2 hp	Yes	Yes
30 Amp line relay	Yes	Yes

Specifications:

- Controller size: 8½" × 5" × 3" (215 mm × 127 mm × 76 mm).
- Relay amperage rating: 30 Amps.
- Relay/hook signal voltage: 120/240 Volt.
- Compatible with all FE Petro single-phase submersibles and competitive makes.

Approvals

- Consult factory for applicable approvals.

Quality Certification

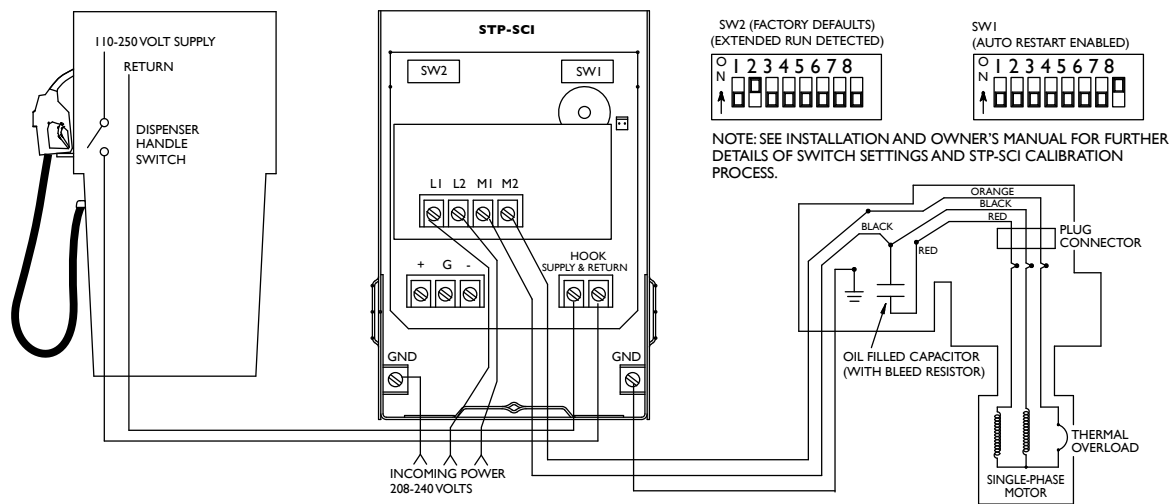
- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

STP-SCI Single-Phase Smart Controller

Part Number	Description
402312922	STP-DHIB-SCI, combo DHIB with factory wired STP-SCI
5800100215	STP-SCI, single-phase smart controller

- Notes:
1. SCI models are compatible with all single-phase FE Petro submersibles and competitive makes.
 2. One SCI required per submersible. Relay rated for 30 Amps (up to 2 hp).
 3. SCI models are not compatible for use in master/slave configurations with STP-SC models.

STP-SCI Single-Phase Smart Controller Standalone Wiring Diagram



Note: See product installation instructions for further details. Wiring must conform to all federal, state and local codes. Control panels are for non-hazardous indoor use only.

Advantages

Easy Retrofit

The STP-SCIIC is compatible with most existing three-phase submersibles from 3/4 to 5 hp. Retrofitting existing stations is as simple as replacing the existing three-phase motor with the STP-SCIIC. No additional wiring is required.

Continuous Diagnostics

The STP-SCIIC constantly monitors for abnormal conditions that reduce motor life or cause down-time. When any of these conditions exists, the STP-SCIIC will alert the service technician to the source of the problem: dry run, extended run, overvoltage, undervoltage, relay fault, voltage/current unbalance, locked rotor, phase loss or open circuit.

Pump Auto-Start

Provides "on demand" automatic pump start of up to eight submersible pumps manifolded to the same discharge line. Lead pump starts to satisfy initial demand and additional pumps are started as demand increases, reducing power consumption and extending pump life.



Three-Phase Smart Controller

STP-SCIIC is designed to replace three-phase motor starters in both new and existing locations. The STP-SCIIC controller provides valuable pump protection and performance features for an economical price.



Specifications:

- Enclosure size: 9-1/16" x 7-6/8" x 5 1/2" (230 mm x 196 mm x 140 mm).
- Compatible with three-phase FE Petro 3/4, 1 1/2, 3 and 5 hp submersibles and most competitive makes.
- Relay rating: 5 hp.
- Relay coil (hook) signal rating: 240 VAC.
- Pump "RUN" indication is provided by flashing green light.
- Power "ON" indication is provided by steady green light.
- Flashing red light indicates fault condition. Number of flashes indicates specific fault.
- Audible alarm alerts operator of fault.
- Built-in voltage surge protection.
- Flashing yellow light indicates RS 485 is communicating.
- RS 485 com port.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

STP-SCIIC Three-Phase Smart Controller*

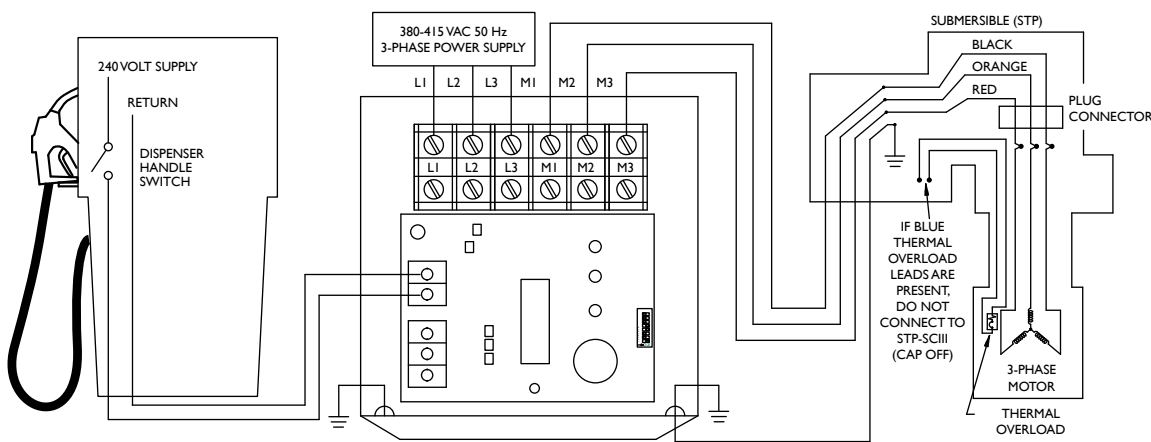
Part Number	Description
5800103300	STP-SCIIC three-phase smart controller

Notes: 1. One STP-SCIIC required per submersible, relay rated for 30 Amps.

2. STP-SCIIC models do not utilise the pump motor thermal overload wiring (blue leads).

*STP-SCIIC is compatible with FE Petro 3 and 5 hp submersibles and competitive makes input voltage rated 380-415 VAC three phase.

STP-SCIIC Three-Phase Smart Controller Standalone Wiring Diagram



Note: See product installation instructions for further details. Wiring must conform to all federal, state and local electrical codes. Motor control panel is for non-hazardous location use only.

Advantages

- Optically isolates inputs from up to eight dispensers preventing damage to dispenser relay boards caused by cross-phasing.
- Prevents electrical feedback between dispenser hook circuits during periods of maintenance and service as required by NEC 514-6, 1999 and other international codes.
- Can be supplied factory-wired in tandem with the FE Petro Smart Controller or the FE Petro standard control box.
- Eliminates false STP run due to voltage leakage of multiple dispensers connected in parallel.
- Fuse-protected output to submersible pump controller.
- The STP-DHIB can retrofit to any existing site.

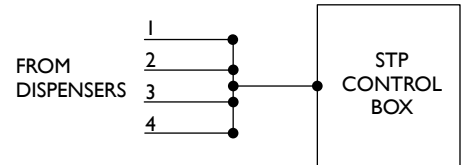


Dispenser Hook Isolation

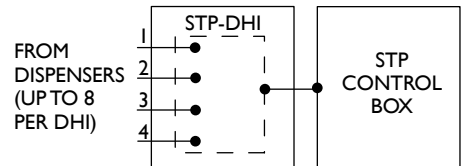
The FE Petro dispenser hook isolation device prevents electrical feedback between dispenser hook circuits as required by most electrical codes.



Conventional



STP-DHI



Specifications:

- Enclosure size: 8½" x 5" x 3" (215 mm x 127 mm x 76 mm).
- Eight optically isolated inputs from dispenser.
- One STP-DHIB required per product grade for up to eight dispensers.
- STP-DHIB: 240 V 30 V A input from supply, eight 240 V 10mA inputs from dispensers.
- Output fuse rating: 250 V 1A, fast-acting.
- 300 Volt surge protection.
- Maximum ambient temperature rating: 120°F.
- LEDs indicate when source power is applied and dispenser hook signals are present.
- Compatible with any submersible pump controller.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

STP-DHIB Dispenser Hook Isolation

Part Number	Description
402312922	STP-DHIB-SCI combo DHI with factory-wired STP-SCI
402313922	STP-DHIB-CBBS, combo DHI with factory-wired STP-CBBS single-phase control box
5800300200	STP-DHIB, isolates up to eight, 240 Volt dispenser handles

- Notes: 1. DHIB models are compatible with FE Petro submersible pump controllers and competitive pump controller makes accepting 240 Volt dispenser hook signal.
2. DHIB models can be connected together for products with more than eight dispenser handle inputs.



STP-DHIB-SCI

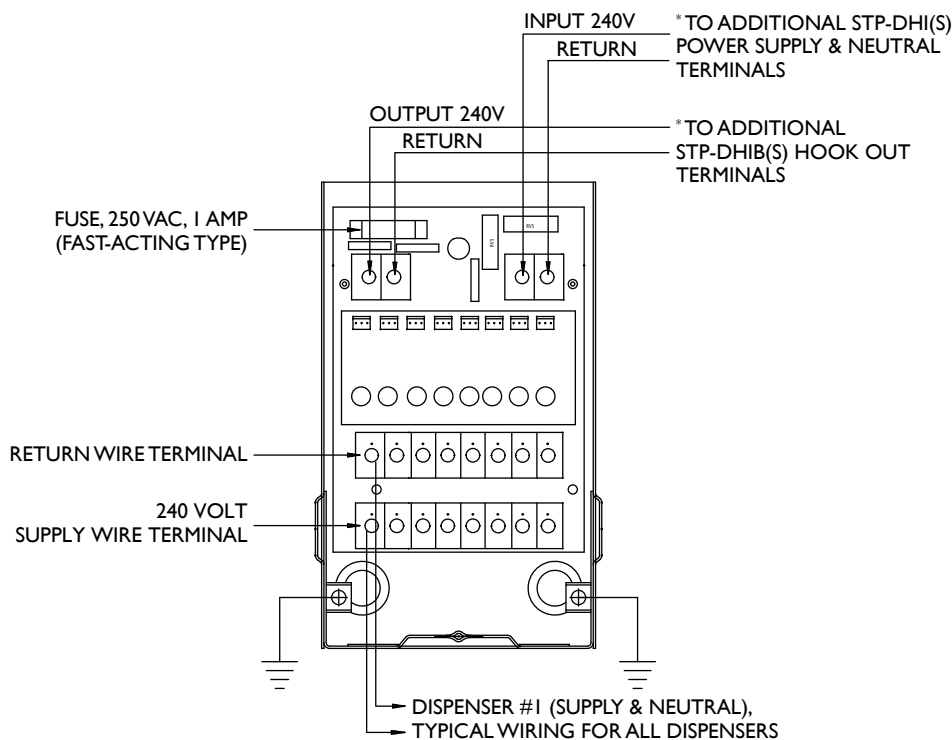


STP-DHIB-CBBS

DHI Repair Parts and Accessories

Part Number	Description
223243103	DHI fast-acting fuse, 250 VAC, 1 Amp
223885931	DHIB circuit board, 240 Volt dispenser hook signal

DHIB with 240 VAC Dispenser Hook Signal Wiring Diagram



*Wiring is polarity-sensitive when multiple units are connected together.

Advantages

- Incorporates an "ON/OFF" power switch.
- Relay energized with 240 Volt dispenser/hook signal.
- Franklin Fueling Systems is an ISO 9001 certified manufacturer.
- Consult factory for applicable approvals.



Single-Phase Control Box

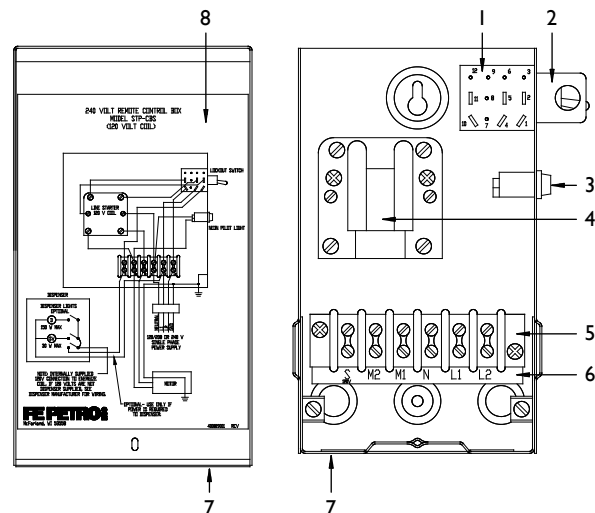
The FE Petro standard single-phase control box latches line power to the submersible when the relay is energized by a dispenser signal. Compatible with FE Petro and competitive makes of single-phase, fixed speed submersible turbines up to 2 hp.



Part Number	Description
400818922	STP-CBBS, single-phase control box, with switch and lockout, 240 Volt coil
402313921	STP-DHIB-CBBS, combo dispenser hook isolation with factory wired STP-CBBS

- Notes:
1. CBBS models are compatible for use on all single-phase FE Petro submersibles and competitive makes.
 2. One CBBS required per submersible, relay rated for 30 Amps up to 2 hp.
 3. Incorporates pump "ON" indicator light.
 4. Relay rated for 240 Volt pumps up to 2 hp, 30 Amps.

STP-CBBS Repair Parts and Accessories



Item	Part Number	Description
1	403274001	Power switch (replaces 400575001)
2	400574001	Power switch bracket
3	400158902	Light assembly, 240 Volt
4	400215933	Relay, 30A, 240 Volt coil
5	400278006	Six position terminal strip
6	402410002	CBBS terminal strip label
7	400817901	Cover and enclosure
8	400819001	CBBS wiring diagram

Intake Filter Screen

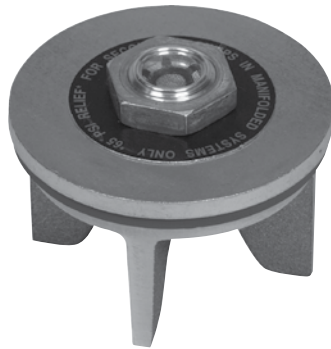
Stainless steel construction filters to 0.25mm or larger particles. Mounts to FE Petro or competitive 4" Pump Motor End Bell and only adds about 25.4mm to assembly length.



Part Number	Description
400660901	Intake filter screen single pack
400660912	Intake filter screen 12 pack carton

Model 65 PSI (4.5 bar) Relief Check Valve

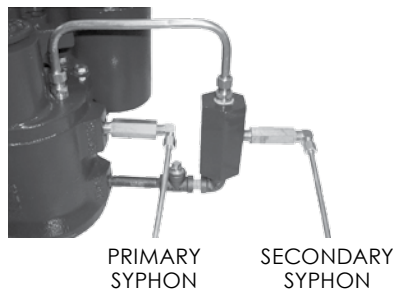
For use in slave(s) 4" STP manifolded pump installations. Not available factory installed.



Part Number	Description
402459931	Model 65 PSI (4.5 bar) relief check valve

Secondary Syphon Kit

For use when two syphon primers are required for one 4" STP. One to syphon for condensate pod, one for syphoning two or more tanks of like product.



Part Number	Description
402507930	Secondary syphon kit

Replacement Pump Motor Assemblies

Model	Description
PMA75B	3/4 hp pump motor assembly, single-phase (521 mm)
PMA75C	3/4 hp pump motor assembly, three-phase (502 mm)
PMA150B	1½ hp pump motor assembly, single-phase (578 mm)
PMA150C	1½ hp pump motor assembly, three-phase (553 mm)
PMA200B	2 hp pump motor assembly, single-phase (654 mm)
PMA200C	2 hp pump motor assembly, three-phase (597 mm)

Replacement Variable Speed Pump Motor Assemblies

Model	Description
PMAVS2	2 hp variable speed pump motor assembly (508 mm)
PMAVS4	4 hp variable speed pump motor assembly (635 mm)

Factory Installed Approvals (may specify one in model number at time of PMA order)

Designation	Description
(ATXF)	Submersible Turbine Pumps with ATEX Flameproof approval for EN markets
(RT)	Submersible Turbine Pumps with ROSTEST approval for Eastern European markets

Note: If not otherwise specified, all models are supplied to UL approval as standard. Consult Factory for other local approvals.

Factory Installed Options (specified in model number at time of PMA order)

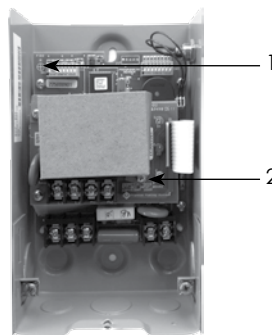
Designation	Description
AG	Alcohol-gasoline compatible
F	Floating suction adapter, 1½" NPT female, must be factory installed
H	High Pressure 3.1 bar deadhead output (150 & 200 models only)
K	IFS (intake filter screen) factory assembled to pump motor assembly
M	Magshell™ (2 & 4 hp models only)

4" STP Extractable Sections (less manifold, riser and PMA)

Model	Description
STPEXT-VL1	Variable length #1 extractable
STPEXT-VL2	Variable length #2 extractable
STPEXT-VL3	Variable length #3 extractable
STPAGEXT-VL1	AG variable length #1 extractable
STPAGEXT-VL2	AG variable length #2 extractable
STPAGEXT-VL3	AG variable length #3 extractable

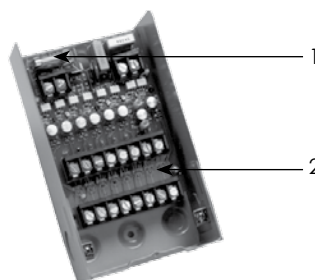
STP-SCI Smart Controller

Item	Part Number	Description
1	225000930	SCI lower board control
2	225005930	SCI upper board relay



STP-DHIB Dispenser Hook Isolation Box

Item	Part Number	Description
1	223243103	250 AC fast-acting fuse
2	223885931	240 Volt circuit board (includes fuse)



MagVFC™ and Eco-VFC™

Part Number	Description
223919930	MagVFC™ / EcoVFC™ fan assembly
225040930	MagVFC™ / EcoVFC™ user interface board
228289930	MagVFC™ / EcoVFC™ normally open relay



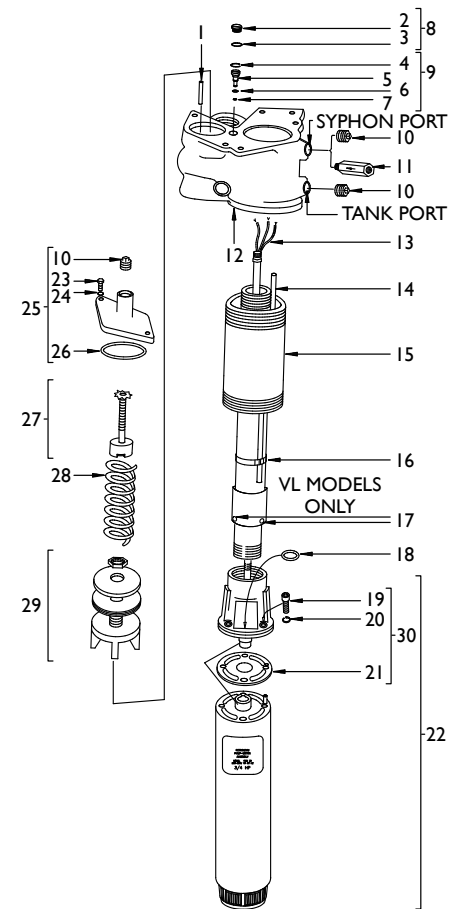
MagVFC™



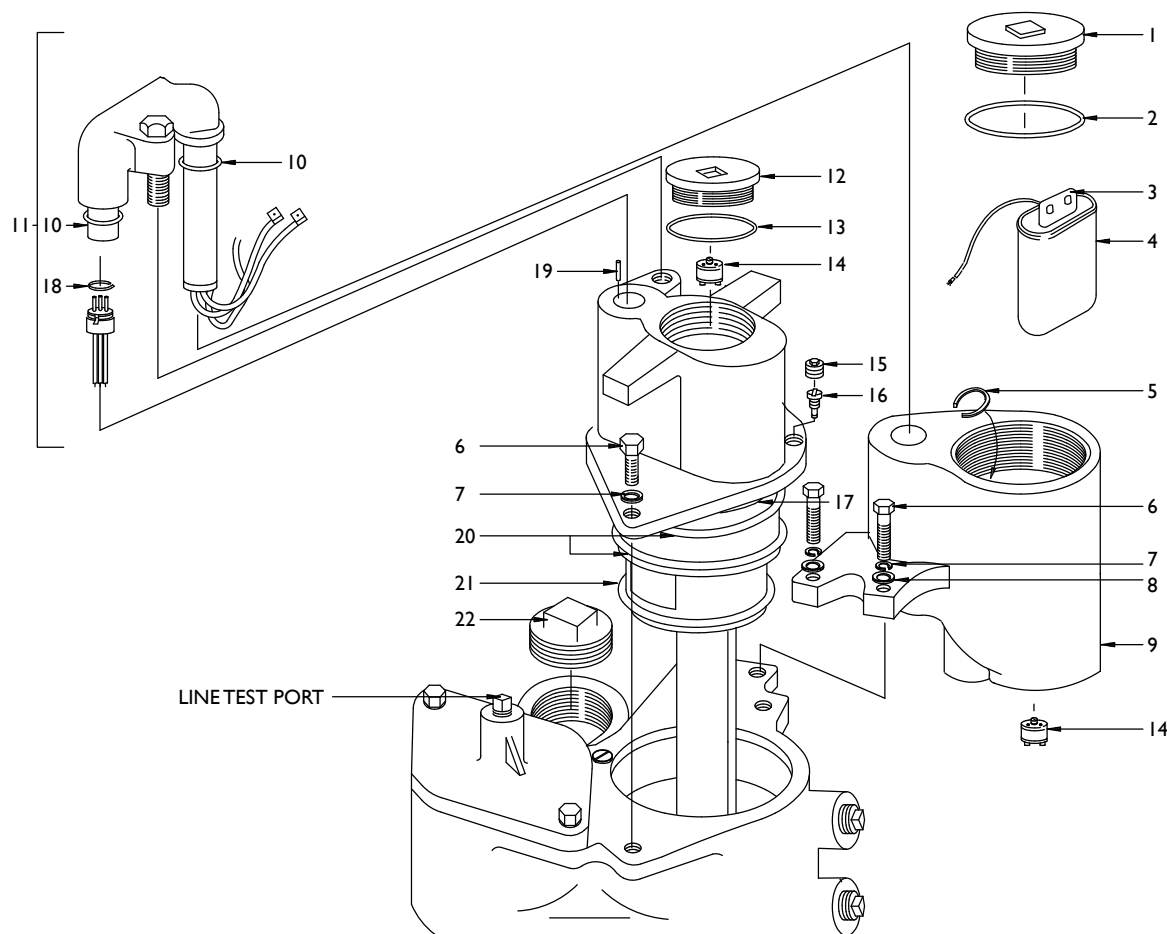
EcoVFC™

PMA, Riser and Check Valve for Variable Length and Fixed Length Pumps

Item	Part Number	Description	Qty
1	400125001	3/16" x 1-5/8" spiral pin	1
2	400615001	Manual relief plug (400615002 AG Complatible)	1
3	400211114	O-ring, plug	1
4	400627001	Retaining ring	1
5	400616001	Manual relief screw (400616002 AG compatible)	1
6	400333012	Relief screw, top O-ring	1
7	400333007	Relief screw, bottom O-ring	1
8	400628901	Manual relief plug assembly, includes items #2 and #3 (400628902 AG compatible)	1
9	400629901	Manual relief screw assembly, includes items #4, #5, #6 and #7 (400629902 AG compatible)	1
10	400259001	1/4" NPT pipe plug, may be purchased locally	3
11	400137937	Syphon check valve	-
12	400221930	Discharge manifold, includes #1, #8, #9 and two #10	1
13	151213930 151213932	156" lead assembly 240" lead assembly	1
14	Purchase locally	Stationary vapour tube, 3/8 OD x 7/20 WT	-
15	4001689XX (XX = length)	Riser, 4-1/2' OD x 3/16" WT steel tubing 7"-19" 20"-30" 31"-49" 50"-69"	1
16	Purchase locally	1/2" steel banding	-
17	400600002	5/16-24 x 7/16" set screw for variable lengths only	3
18	400333015	Lead assembly O-ring	4
19	400264009	5/16-18 x 1-1/8" socket head cap screw, may be purchased locally	4
20	400263004	5/16" high-collar lock washer, may be purchased locally	1
21	402449001	PMA gasket (402449002 AG Compatible)	1
22	PMA XXX	Pump motor assembly, includes item #34 (XXX indicates options and horsepower)	2
23	400981001	3/8-16 x 1" Hex head screw	2
24	400285002	3/8" standard lock washer, may be purchased locally	1
25	400197930	Manifold assembly cover, includes #10, #26, two #23 and two #24	1
26	400333238	AG compatible O-ring	1
27	400147930	Clamp valve assembly	1
28	400174930	Check valve spring	1
29	400988931 400988932 400988933 402459931	Standard check valve, includes item #26 (400988934 AG compatible) Model R check valve, includes item #26 (400988935 AG compatible) Model W check valve, includes item #26 (400988936 AG compatible) Model 65 PSI check valve (for slave STPs only)	1
30	152350902	PMA hardware pack, includes #21, and four #19 and #20 (152350903 AG compatible)	-
Not shown	400216905	AG compatible O-ring kit, includes items #3, #6, #7 and #26 on this page and items #2, #10, #13, #17, #20 and #21 on page 35	-



Discharge Manifold Assembly



Item	Part Number	Description	Qty.
1	400192930	Junction box cover, includes item #2	1
2	400210233	O-ring	1
3	400655001	Capacitor boot	1
4	400170933	Capacitor assembly for 3/4 to 1 1/2 hp, 50 Hz, 15µfd, 440 Volt single-phase; includes one black lead	1
	400170935	Capacitor assembly for 2 hp, fixed speed, 50 Hz, 40µfd, 440 Volt single-phase; includes one black lead	
5	400257001	Retaining ring	1
6	400258002	3/8-16 x 1-1/4 Hex head bolt, may be purchased locally	4
7	400285002	3/8 standard lock washer, may be purchased locally	4
8	400280001	3/8 standard flat washer, may be purchased locally	2

Item	Part Number	Description	Qty.
9	400651930	Junction box assembly, includes two #6, #7 and #8	1
10	400210212	O-ring	2
11	400200930	Wire connector kit, includes male/female connectors, two #10, one #5, and #18	1
12	400589930	Cover, includes item #13	1
13	400210229	O-ring	1
14	400236903	Contractor's plug	2
15	400259002	3/8" NPT pipe plug, may be purchased locally	2
16	400562901	Syphon jet assembly (400562903 AG Compatible)	1
17	400211046	O-ring	1
18	400249001	Retaining ring	1
19	400250002	1/8" dia. x 1/2" roll pin	1
20	400333343	AG compatible O-ring	2
21	400333340	AG compatible O-ring	1
22	400259005	2" NPT square head plug	1

Advantages

High Performance

FE Petro's multi-stage centrifugal pump is coupled with a dependable Franklin Electric motor to provide higher heads, faster fuel delivery and lower cost operation. Motors are all three-phase for smooth operation and are available in various voltages. Units come standard with a 6" diameter riser pipe to mount the pump to the tank.

Ease of Maintenance

If service is required, FE Petro products are designed to put the operator back in business fast. Maintenance on the pump motor assembly can be performed without having an electrician on site. Large diameter pins and sockets provide automatic open circuits and disconnecting of the wiring when the extractable portion of the pump is removed. Properly spaced lifting eyes facilitate the removal of the unit without disturbing the discharge piping. The pump motor assembly is easily removed from the discharge head by removing four bolts and using standard pusher bolts. Replacement pump motor assemblies are available for comparably sized competitive pumps.

Reliability

Quality engineering and simplicity of design work to ensure years of reliable performance from every high capacity unit. The continuous duty, three-phase Franklin Electric motor with carbon bearings and stainless steel journals is FE Petro's standard. The impellers, made of moulded Delrin, and diffusers of hard coated aluminium, with a stainless steel pump shaft, assure trouble-free operation in motor fuels. Dual (180° opposed) 3" horizontal discharge ports provide easy installation, and two built-in line check valves reduce installation costs. Two line pressure relief valves protect the dispensers, metres and piping from abnormal pressures due to thermal expansion. The mesh screen on the pump inlet prevents large particles from entering the unit and the unit is compatible with existing high capacity leak detector technology. New units are easily connected to field wiring without disassembly.

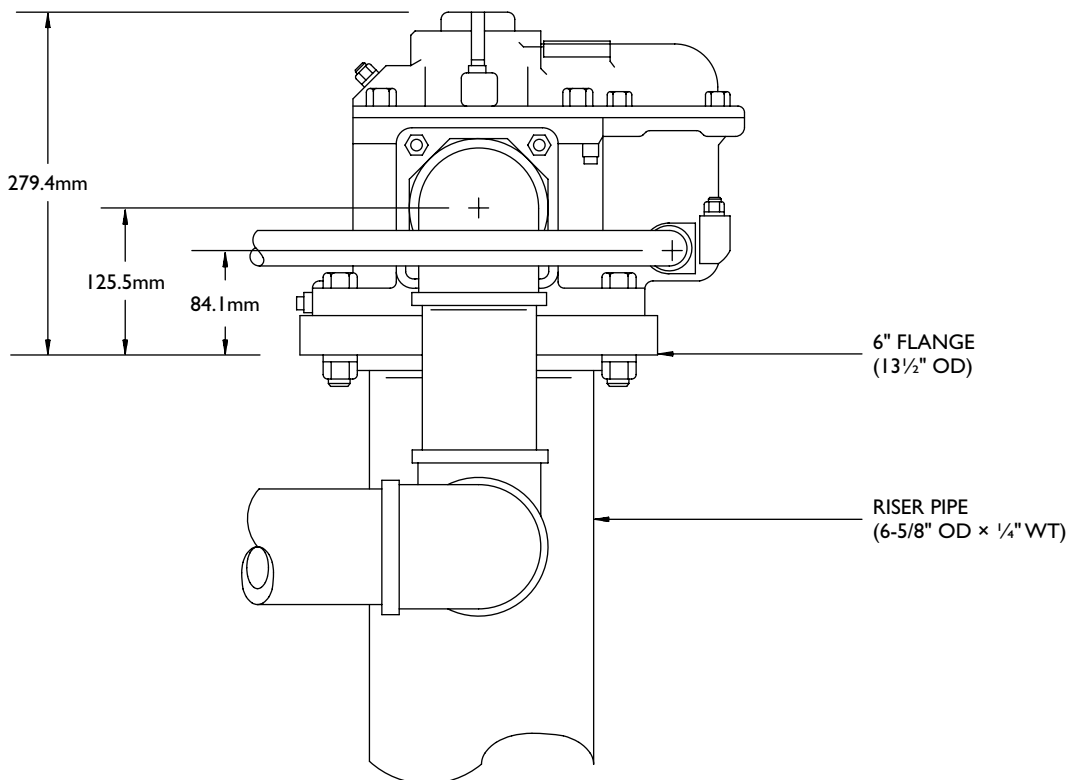
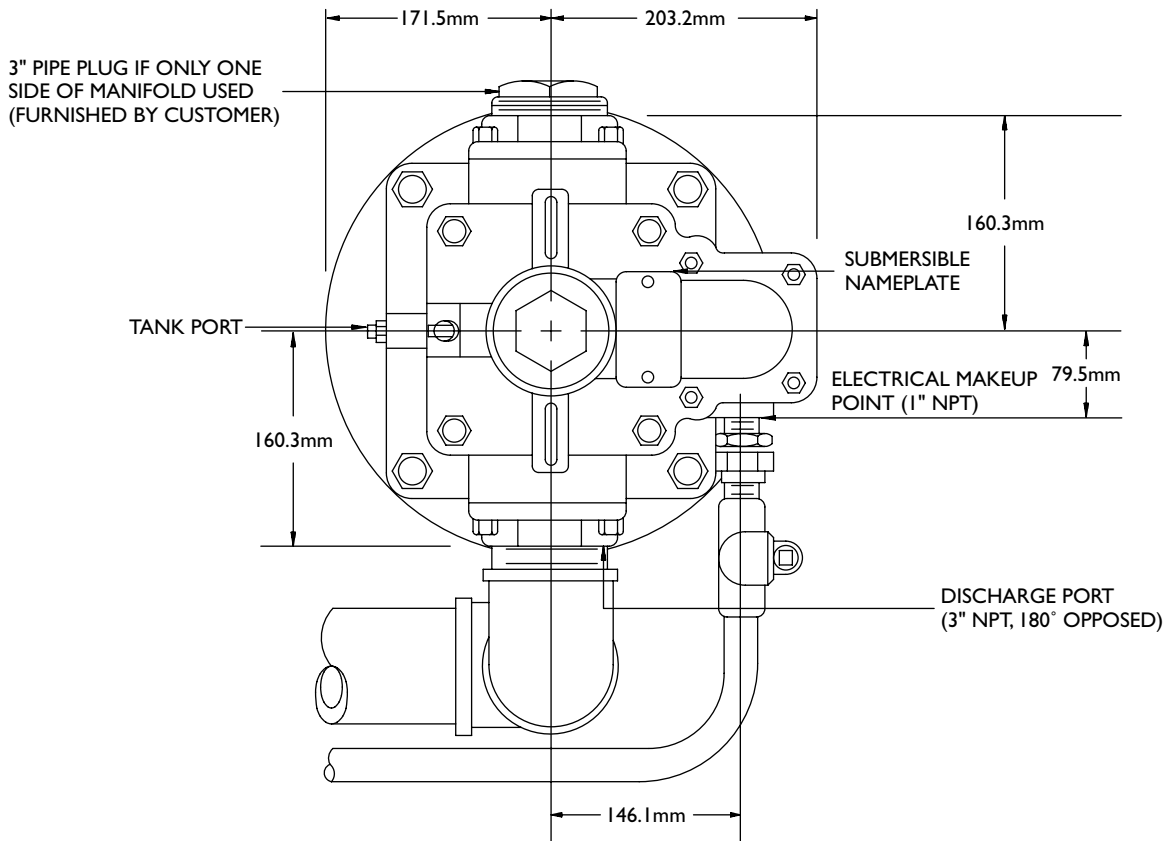
Satisfaction

Each and every high capacity pump is built to your tank and bury specifications and the complete assembly is performance tested to ensure that your needs are met. All high capacity pumps are UL listed and meet the requirements of UL 79.

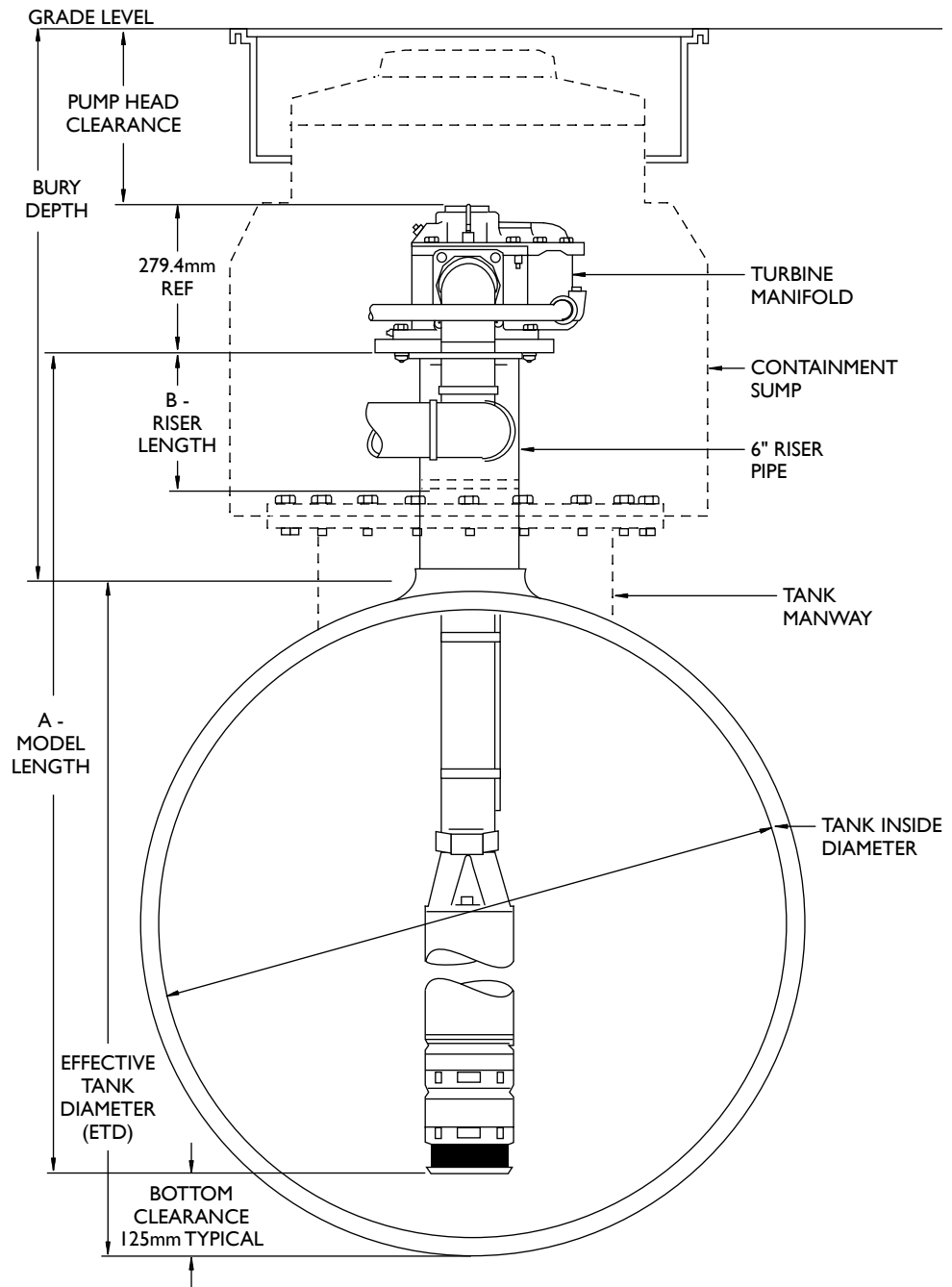
High Capacity Submersible Turbine Pumps

Available with either 3 or 5 hp, the FE Petro high capacity pump delivers efficient, reliable and quiet performance when high volumes or high speed deliveries of gasoline or diesel fuel are required.



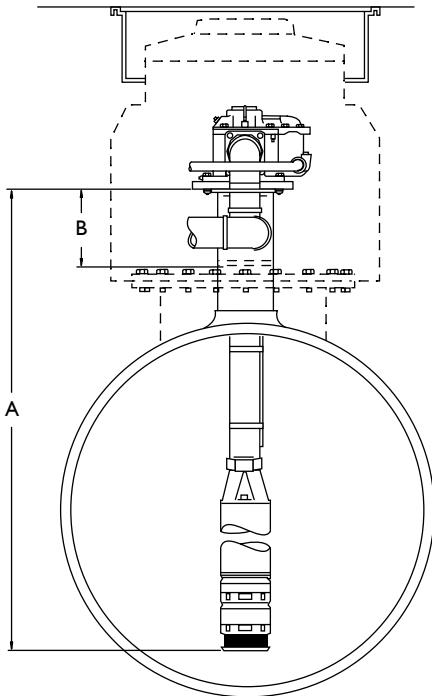


High Capacity Pump Ordering Guide



- Note: 1. Effective tank diameter (ETD) = Inside tank diameter (to top of 4" bung), including tank manway and/or sump adapter.
 2. Model length (A) = ETD plus riser length minus bottom clearance minus 1" thread engagement.
 3. Riser length (B) = Bury depth (to top of tank) minus pump head clearance minus tank manway and/or minus sump adapter.

High Capacity Submersible Turbine Pump Specifications



For full diagram see page 38.

Power Requirements

- 50 Hz high capacity pump models require three-phase, 380-415 Volt incoming power.
- 50 Hz high capacity pump models are available in 3 hp and 5 hp versions.
- STP-SC11C three-phase smart controllers and STPCBB3C and STP-CBB5C three-phase control boxes are available for high capacity pump control.

Pump Motor

- Fixed speed, 2875 rpm, multi-stage centrifugal type pump motor with built-in, automatic, thermal overload protection.

Liquid Compatibility

- Max. liquid viscosity: 70 SSU at 60°F (15°C).
- Standard models are listed for fuel mixtures containing up to 10% ethanol with gasoline, and 20% MTBE, 20% ETBE or 17% TAME with gasoline.
- HCP models can also be used with diesel fuels, fuel oils, kerosene, Avgas and jet fuels in a non-gelled pourable state.
- All wetted elastomers are made of a high grade, fluorocarbon Viton® compound.

Standard Features

- Pressure relief valve: cartridge design available in two pressure relief settings, external to check valve. Standard model relieves at 2.76 bar and resets above 2.41 bar.
- Syphon: external venturi-type syphon primer supplied as submersible accessory.
- Air eliminator: every submersible includes tank return path to provide active air elimination.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.
- Viton® is a registered trademark of DuPont Dow Elastomers.

High Capacity Submersible Turbine Pump Model Designation System

A typical turbine model designation has up to five components to define the pump being supplied as follows:

STP XXXXX Y - A - B

STP = Basic Model Designation

Note: Standard models up to 10% ethanol capable.

XXXXX = Factory Installed Options

HCP model designations may include one or more of the following characters in alphabetical order:

F = Floating suction adapter (3" NPT male adapter)

R = Model R check valve (1.65 bar relief/1.51 bar reset for PLLD)

*Note: If not otherwise specified, all HCP models supplied with standard model check valve (2.76 bar relief/2.41 bar reset for MLD, TS-LS300 and TS-LS500).

Y = Pump Motor Horsepower/ Electrical Rating

3C = 3 HP, 380-415 V, 50 Hz three-phase
5C = 5 HP, 380-415 V, 50 Hz three-phase

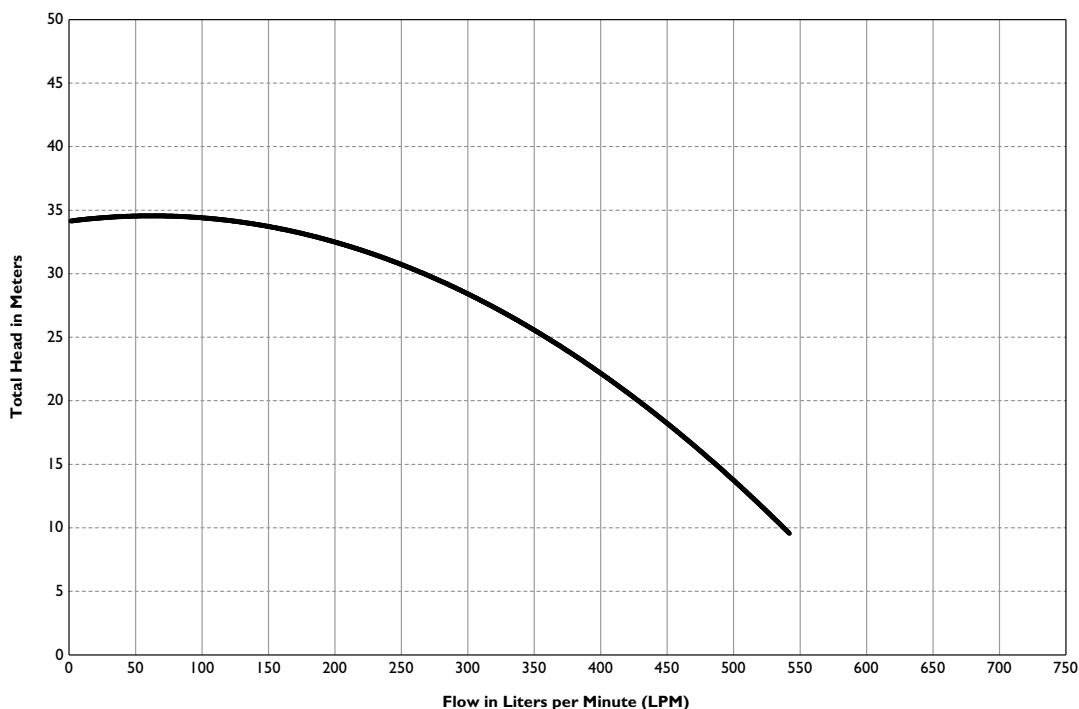
A = Model Length

Model length is expressed as three numeric characters that indicate the length of the HCP from the turbine manifold bottom to the pump motor inlet in inches, available from 1524 mm to 5080 mm (additional charge for models 3353 mm and longer).

B = Riser Pipe Length

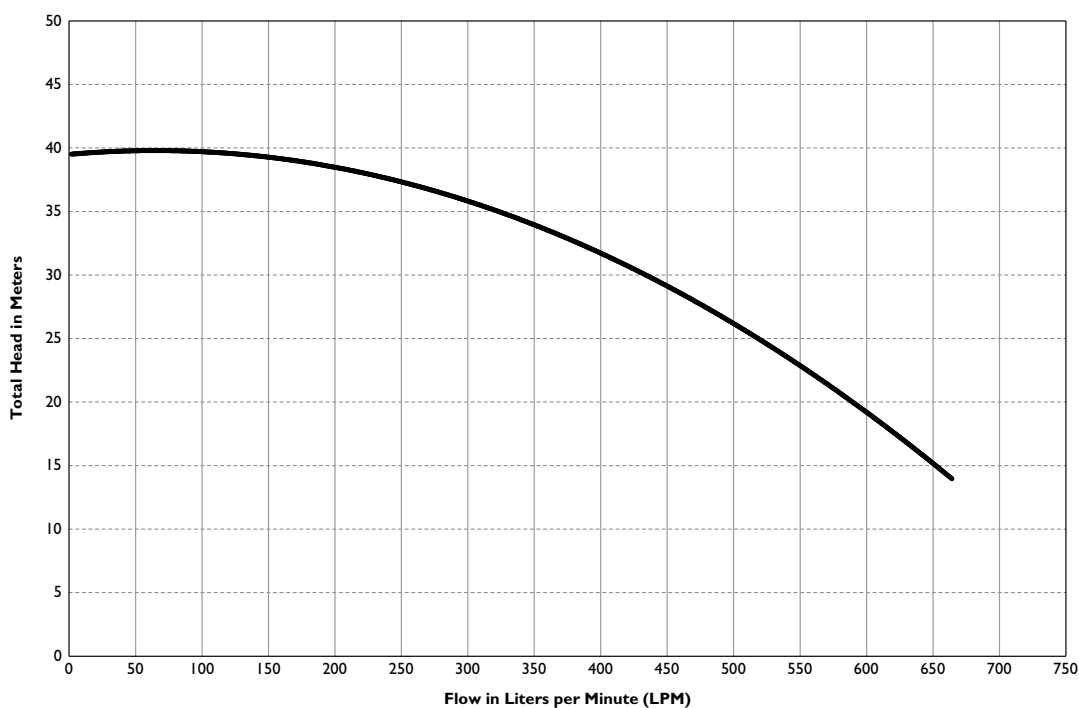
Riser pipe length is expressed as two numeric characters that indicate the total length of the riser in inches. Riser pipes are available from 152mm to 1524 mm in 76mm increments (additional charge and lead time for risers 838 mm or longer).

3 hp Fixed Speed High Capacity Performance Chart (STP3C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 5 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

5 hp Fixed Speed High Capacity Performance Chart (STP5C)



Note: Performance based on pumping solvent (0.78 specific gravity). Pressure is taken at the manifold discharge outlet. Fixed Speed 5 HP was powered by Three-Phase, 50 Hz, 415 Volt incoming supply.

High Capacity Turbine Pumps **

Model	Description
STP3C *	6"STP three phase 380-415 VAC 50Hz
STP5C *	6"STP three phase 380-415 VAC 50Hz

* Please call Customer Service for lead time on these items

** Available as fixed length models only

Notes:

1. STP models are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuels, 20% MTBE, 20% ETBE or 17% TAME with gasoline.
2. All models are supplied with a standard check valve unless factory option "R" is specified.
3. All above models require 380-415 VAC, three-phase, 50 Hz incoming power.
4. 6" riser pipe, if supplied locally, must be 6-5/8" OD by 1/4" WT tubing.
5. For riser pipe lengths 838mm to 1524mm, additional charge applies.

** Model length (A) defined as the dimension from turbine manifold bottom to pump motor inlet. Model length (A) can be a minimum of 1524mm to a maximum of 5080mm. Adder (p/n 401190911) applies if model length (A) is 3353mm to 4318mm or adder (p/n 401190914) applies if model length (A) is 4319mm to 5080mm (charges are for additional packaging STP).

Factory Installed Options

Designation	Description
401227001	Floating suction adapter, 3" male NPT (must be ordered with STP)
R	Model R relief valve factory installed, for Veeder Root™ PLLD

Field Installed Options

Model	Description
401165930	Syphon System
STP-CBB3C	3 hp, 380-415 VAC, 50 Hz, three-phase motor starter, 240 VAC coil
STP-CBB5C	5 hp, 380-415 VAC, 50 Hz, three-phase motor starter, 240 VAC coil
STP-SCIIC	Three-phase, 380-415 VAV smart controller

* STP-SCIIC is compatible with FE Petro 3 and 5 Hp submersibles and competitive makes, input voltage rated 380-415 VAC three phase

6" STP Extractable (less manifold, riser and PMA)

Model	Description
HCPEXT-XXX	6" fixed length extractable (XXX indicates Model Length, minimum 1524mm and maximum 5080mm)*

* Fixed Length adders apply for extractable model lengths 3353mm to 5080mm

Advantages

Low Line Restriction

Piston design offers the maximum flow rate possible by keeping flow restriction through the leak detector at an absolute minimum. Piston has a full 41.3 mm of travel to move the leak detector poppet fully out of the flow path when product is being pumped.

Faster Installation

MLD-HC can be installed after purging air on new installations.

Piston Design

Piston cylinder has 94.2 cubic centimeters of volume to help minimise nuisance tripping due to thermal contraction during cold weather.

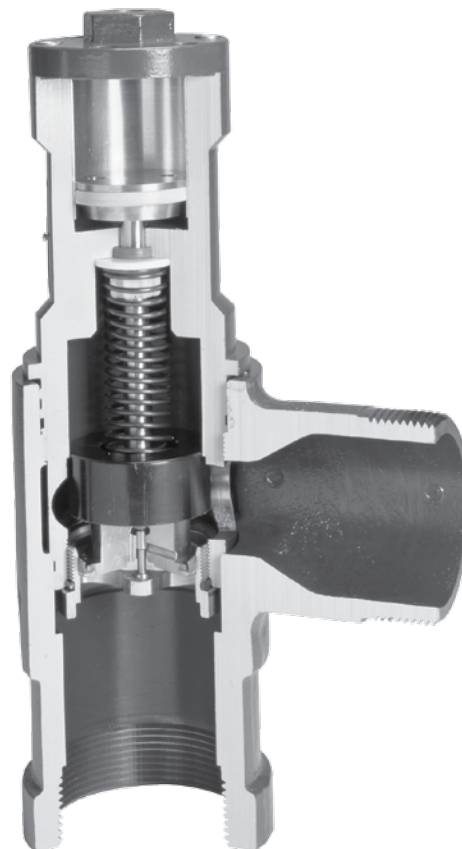
MLD-HC Seal

Threads seal using O-rings instead of thread sealant. This seal design makes for simple installation and removal of MLD-HC without large wrenches in the tight working environment of the containment sump.



High Capacity Line Leak Detector

The High Capacity MLD product line is based on our standard STP-MLD unit design. The High Capacity MLD's compact design allows installation in the same containment sump as the submersible pump, greatly reducing the amount of unprotected leak points between the submersible and the MLD.



Specifications:

- Detects leaks of 11.4 lph or greater at 0.69 bar.
- Third party evaluated to comply with US EPA requirements 280.41 (B) and 280.44 (A) for continuous monitoring of pressurized piping.
- Size: 197 mm x 381 mm.
- Weight: 12.7 kg.
- The MLD-HC will remain in the open flow position with dynamic line pressure at 0.14 bar at the outlet.
- Maximum static head pressure without affecting operation is 3.7 m from MLD-HC to dispensing point.
- Minimum height required from 76.2 mm NPT port centreline for top clearance is 241 mm. Not position sensitive. Can be installed horizontally to reduce clearance to 76.2 mm.
- Compatible with all blends of motor fuels including alcohol blends from 0 to 10% ethanol, 20% MTBE or ETBE with 80% gasoline, or 17% TAME with 83% gasoline as well as diesel, fuel oil, Avgas, jet fuel or kerosene.
- Two models available: STP-MLD-HC for gasoline, STP-MLD-HCD for diesel.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.

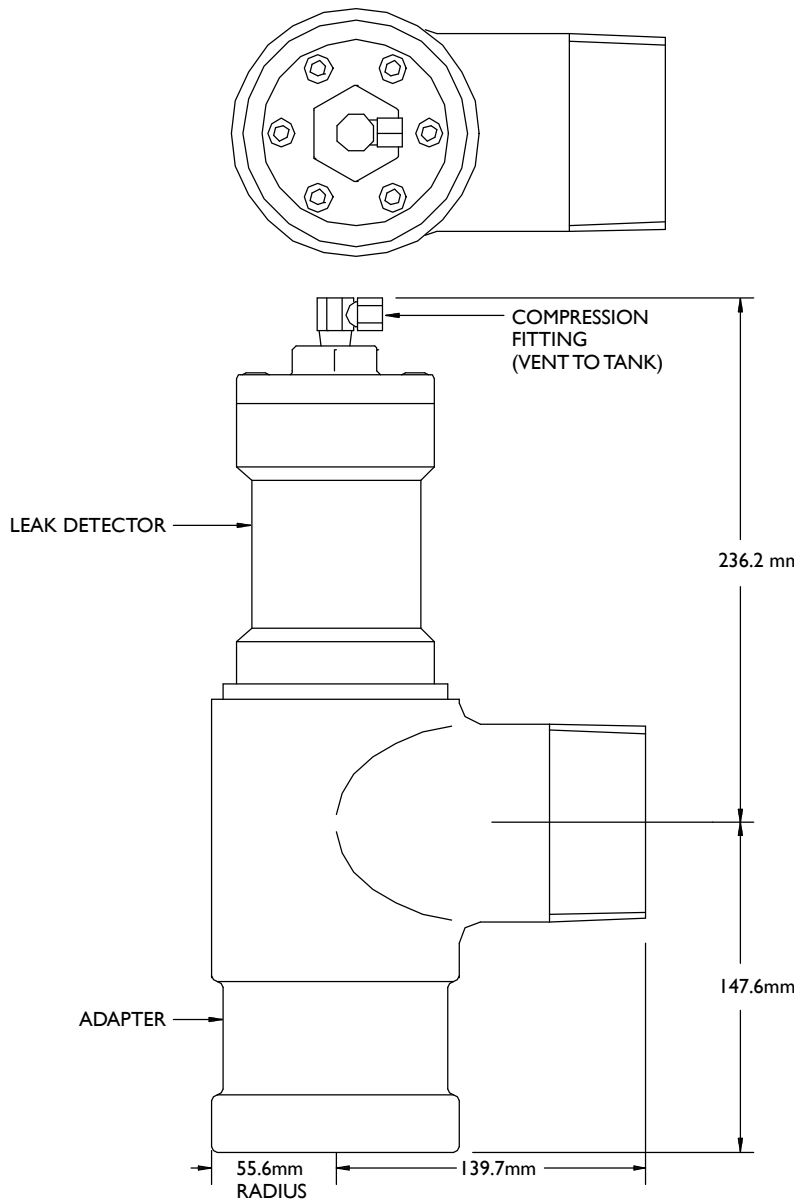
High Capacity Mechanical Leak Detectors*

Model	Description
401315902	STP-MLD-HC leak detector complete with Adapter "T" (for gasoline)
401320902	STP-MLD-HCD leak detector complete with Adapter "T" (for diesel)
401315901	Replacement high capacity leak detector ONLY (for gasoline)
401320901	Replacement high capacity leak detector ONLY (for diesel)
401316930	Replacement cover assembly
401325901	Replacement Adapter "T" with cover assembly
400449902	MLD-HC hardware pack, includes fittings and documentation

Notes:

1. MLD-HC models are listed for compatibility with fuel mixtures containing up to 10% ethanol with gasoline, diesel fuels, and 20% MTBE, 20% ETBE, or 17% TAME with gasoline.
2. MLD-HCD models are listed for compatibility with diesel fuels and kerosene applications only.
3. All above models will only mount in Adapter "T" (p/n 401325901)

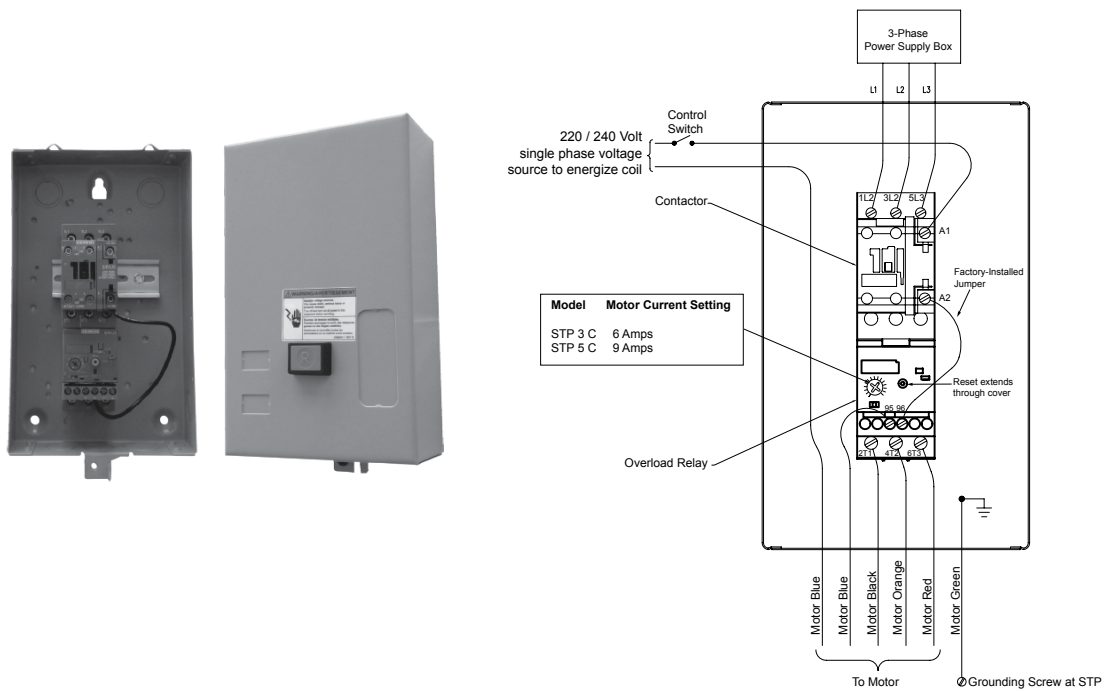
*Refer to high capacity MLD installation manual for complete fuel compatibility specifications.



STP-CBB3C and STP-CBB5C Magnetic Starter

The FE Petro magnetic starter incorporates ambient compensated relays with quick trip heaters and three leg protection to assure proper pump motor protection.

STP-CBB3C and STP-CBB5C wiring diagram



Specifications:

- Compatible with three-phase, 50 Hz FE Petro 3 and 5 hp submersibles and most like compatible models.
- Relay rating: 5 hp.
- Relay coil hook signal rating: 240 Volts for all versions.
- Incorporates three-leg contactor and adjustable overload relay with reset button.

Approvals

- Consult factory for applicable approvals.

Quality Certification

- Franklin Fueling Systems is an ISO 9001 Certified Manufacturer.



CBB 3/5 Repair Parts

Part Number	Description
401220965	STP-CBB3C three phase control box with adjustable overloads, 240 volt relay, 3hp, 380-415 Volt relay pump control
401220966	STP-CBB5C three phase control box with adjustable overloads, 240 volt relay, 5 hp, 380-415 Volt relay pump control

Replacement Pump Motor Assemblies*

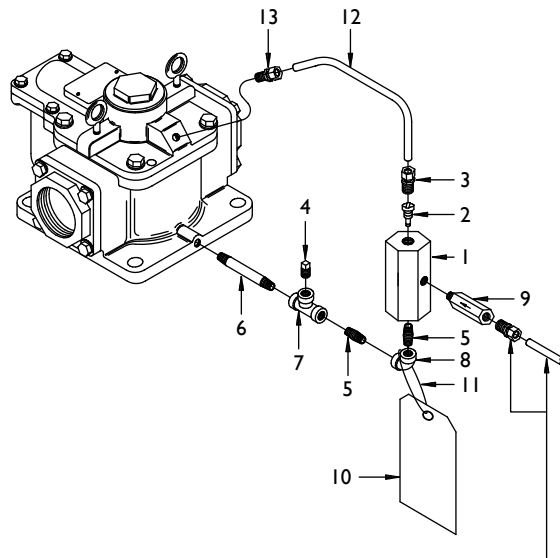
Model	Description
PMA3C *	3 hp 380-415 Volt 6" pump motor assembly
PMA5C *	5 hp 380-415 Volt 6" pump motor assembly

*For pump motor assemblies with floating suction adapters (3" male NPT connections), specify "F" in the model number and adder charge applies (must be ordered with PMA).

* Please call Customer Service for lead time on these items

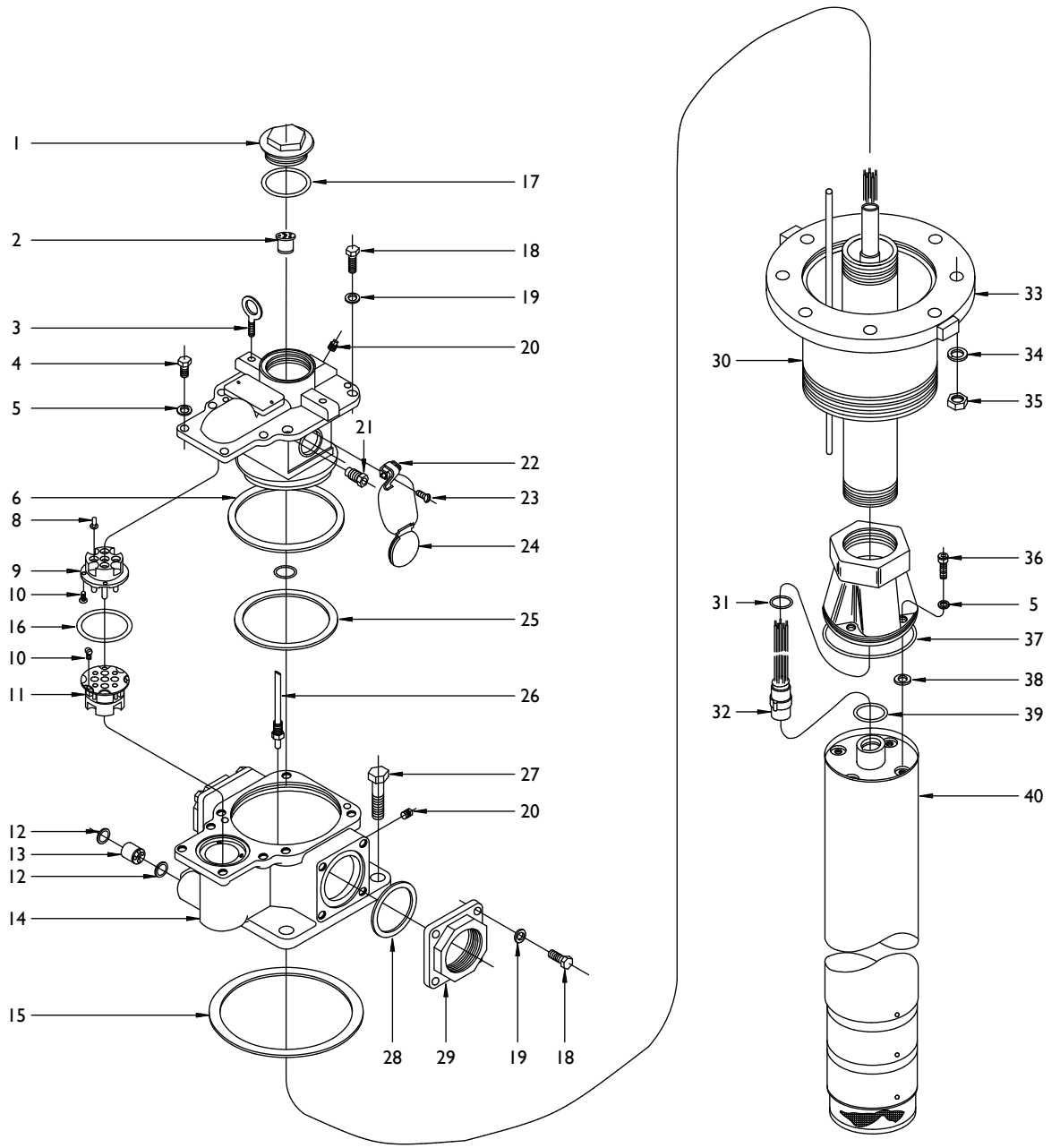
Syphon System

Item	Part Number	Description
1	402505001	Syphon block
2	400562901	Syphon jet assembly
3	400430004	3/8"P × 3/8"T compression fitting
4	400259001	1/4" pipe plug
5	400114001	1/4" close nipple, two required per system
6	400114003	1/4" nipple × 3" long
7	402510001	1/4" threaded tee
8	402511001	1/4" threaded elbow, 90°
9	400137937	Syphon check valve
10	402544001	Caution tag
11	400982001	Security seal
12	402553902	Copper tube (HC pump)
13	400430003	1/4"P × 3/8"T compression fitting
NS	401165930	Syphon unit complete, includes all items above



CONNECT 1/4" NPT × 3/8" TUBE FITTING TO CHECK VALVE AND 3/8" OD COPPER TUBING TO HIGHEST POINT IN SYPHON LINE (FURNISHED BY CUSTOMER)

High Capacity General Assembly



STP3 and STP5 (High Capacity general assembly)

Item	Part Number	Qty	Description
1	401148101	1	Connection box cover
2	400236909	1	Seal off plug assembly
3	401149001	2	Eye bolt
4	400258001	4	3/8-16 × 1" large Hex head cap screw
5	400285002	8	3/8" lock washer
6	401236002	1	Upper manifold seal
8	400273004	6	12 gauge wire terminal
	400273006	4	14 gauge wire terminal
9	401142901	1	Plug assembly
10	401091001	6	6-32 × 3/8" large round head machine screw, three required per connector
11	401137901	1	Receptacle assembly
12	401238001	2	Bushing ring
13	401239001	1	Seal plug
14	401112101	1	Discharge manifold
15	401163001	1	6" flange gasket
16	400333235	1	O-ring
17	400210234	1	O-ring
18	400258005	12	1/2-13 × 1 1/4" large Hex head cap screw
19	400285005	12	1/2" lock washer
20	400259001	2	1/4" pipe plug
21	401032901	2	Model 550 Relief (old standard pressure, tire valve)
	401330901	1	Standard relief (units built since S/N 0302XXXX)
	401330902	1	Model "R" relief (units built since S/N 0302XXXX)
22*	401154001	2	Valve spring and bracket
23	400523001	4	10-24 × 3/8" long Sems fastener, two required per bracket
24*	401150101	2	Inset valve assembly (check valve)
25	401236001	1	Lower manifold seal
26	401158903	1	Air eliminator assembly
27	400258006	4	3/4-10 × 3" large Hex head cap screw
28	401162001	2	3" flange gasket
29	401113101	2	3" companion flange
30	4011910XX 6-5/8" OD × 1/4" WT (XX = length)	1	6" riser pipe 9" riser pipe 12" riser pipe 15" riser pipe 18" riser pipe 21" riser pipe 24" riser pipe 27" riser pipe 30" riser pipe
31	400333218	1	O-ring
32	151593906	1	192" lead assembly
33	401161101	1	6" flange
34	400285006	4	3/4" lock washer (993517)
35	400274004	4	3/4-10 Hex nut
36	400264011	4	3/8-16 × 1-1/4" large SHCS
37	400333255	1	O-ring
38	402406001	4	Rubber washer
39	400333225	1	O-ring
40	PMA XXX	1	Pump motor assembly, includes #37, #39, and four #5, #36, and #38 (XXX indicates options and horsepower)

*401154001 and 401150101 must be replaced together.

Advantages

- Stainless steel, encapsulated motor ensures longevity and impermeability to DEF seepage.
- Heavy-duty shaft provides superior alignment and resistance to stress.
- Double mechanical shaft seals protect the oil-filled bearing chamber from DEF seepage, assuring minimal wear and proper bearing lubrication.
- Stainless steel hydraulics provide superior performance and efficiency.
- Plug-in type EPDM jacket power cable provides ease of service and DEF compatibility.
- Multiple models available to meet global requirements of voltage and frequency.

Installation

- All models are suitable for vertical installation where the pump motor is suspended off the bottom of the tank by the discharge piping.
- Bypass relief valve with cracking pressure of 2.1-2.8 bar and 15 lpm minimum flow required at the discharge of all models.
- Non-return check valve with maximum cracking pressure of 0.2 bar required between product piping and bypass relief valve of all models.

Diesel Exhaust Fluid Pump Motor Assemblies

FE Petro™ brand diesel exhaust fluid pump motor assemblies (PMAs) feature a stainless steel close-coupled design powered by a field-proven Franklin Electric motor.



Specifications

- Materials: Stainless steel construction including impellers/diffusers, inlet/outlet, and outer shell
- Pump type: All models are 130 mm outside diameter centrifugal type pump
- Power cable: 10 m EPDM jacketed plug-in power cable
- Pump motor: Three-stage pump with 2" BSPT female outlet

Motor Rating

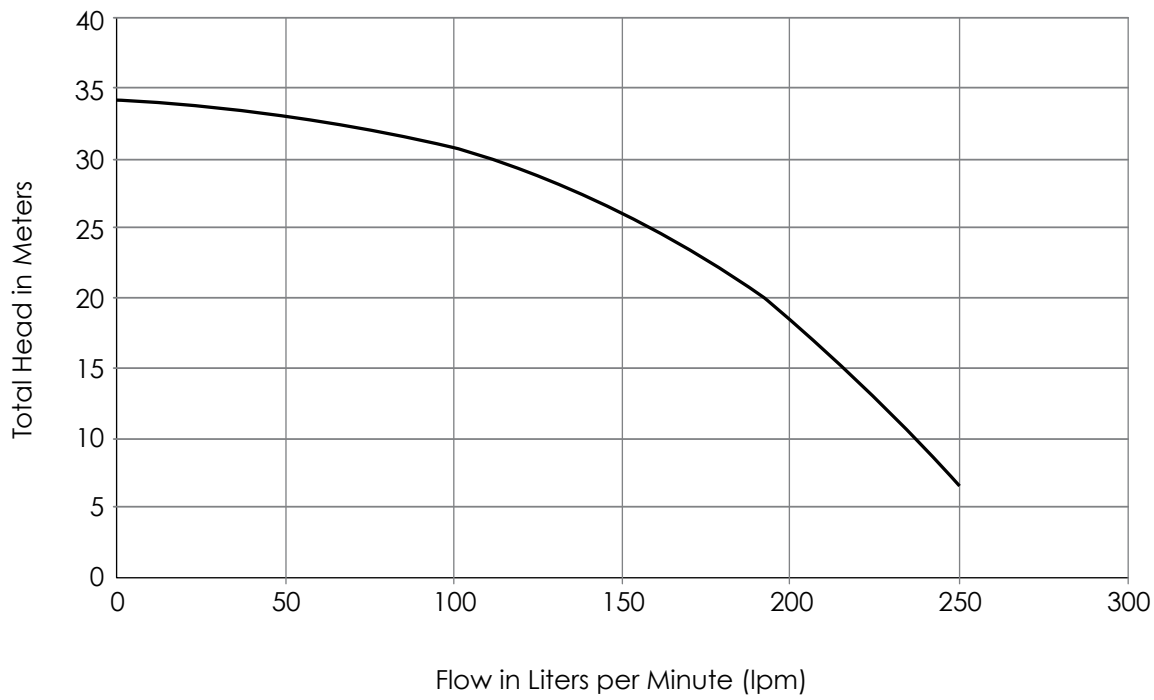
- Continuous operation with motor cooling provided by product flow and protected from dry running

Liquid Compatibility

- All models are intended for use with Diesel Exhaust Fluid (DEF). DEF is a non-flammable, non-combustible liquid that has a specific gravity of 1.09 at 68°F, and is made per ISO 22241-1 specifications with 32.5% urea and distilled or deionized water. As defined by ISO 22241-1, DEF is the same as AUS 32® (aqueous urea solution) and also commonly known as AdBlue®

DEF Pump Motor Performance

DEF-PMA150B (Single Phase) and DEF-PMA150C (Three Phase)



Note: Performance is based on pumping water (1.00 specific gravity). Pressure is taken at the discharge outlet of the pump motor.

Ordering Guide

DEF - PMA YYY Z

DEF = Pump Compatible with DEF

PMA = Pump Motor Assembly

YYY = Pump Motor Hp Rating

150 = 1½ Hp fixed speed (1.1 kW)

Z = Motor Electrical Rating

B = Single phase, 50 Hz, 200-250 VAC (rated 6.9 Amps, requires 30 microfarad run/start capacitor rated 440 VAC)

C = Three phase, 50 Hz, 380-415 VAC (rated 2.6 Amps)

Note: Three phase models require overload protection in motor starter. Single phase models have thermal overload protection built into the motor.

50 Hertz DEF PMA

Model	Description
403383953	DEF-PMA 150 B: Single Phase, 50hz, 200-250 VAC, 1.5 Hp
403383963	DEF-PMA 150 C: Three Phase, 50hz, 380-415 VAC, 1.5 Hp

Single Phase Control Box

Model	Description
400818922	Single-phase 200-250 volt pump control box with switch and lockout, 240 Volt coil

Notes:

1. One CBBS required per submersible, relay rated for 30 Amps up to 2 hp.
2. Incorporates pump "ON" indicator light.

Three-Phase Magnetic Starter

Model	Description
401220966	Three-phase 380-415 volt pump control box with adjustable overload protection and 240 volt coil

Notes:

1. One CBB required per submersible, relay rated for up to 5 hp.
2. Incorporates adjustable overload relay with reset button

If you wish to contact us about any of our products or services please contact the nearest Franklin Fueling Systems office.

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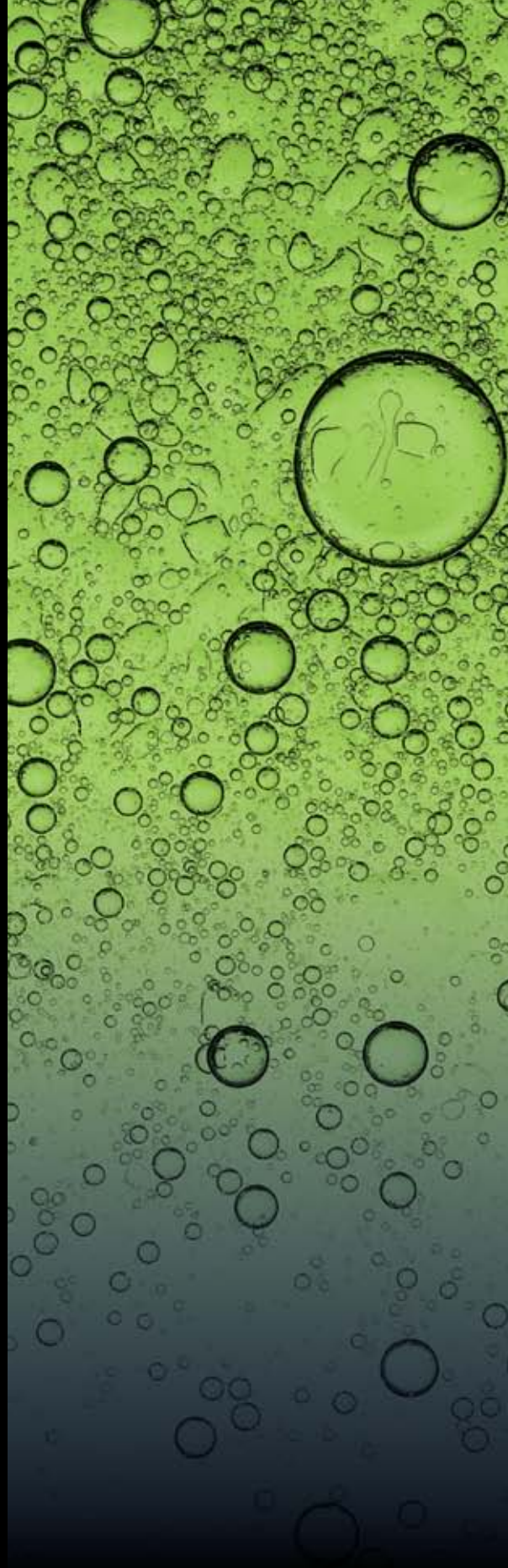
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FFS-0219 SPS 03-14
Global Product Catalogue